A study of the significant factors affecting trust in electronic commerce

Choudhury, Musfiq Mannan

A STUDY OF THE SIGNIFICANT FACTORS AFFECTING TRUST IN ELECTRONIC COMMERCE

By

Musfiq Mannan Choudhury

Thesis Submitted for the Partial Fulfilment of the Requirements

for

The Doctor of Philosophy (PhD) Degree in Electronic Commerce

October 2008

Durham
Business School

CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENT

إِن تَسْتَفْتِحُواْ فَقَدْ جَاءكُمُ الْفَتْحُ وَإِن تَنتَهُواْ فَهُوَ خَيْرٌ لَّكُمْ وَإِن تَعُودُواْ نَعُدْ وَلَن تُغْنِيَ عَنكُمْ فِئَتُكُمْ شَيْئًا وَلَوْ كَثُرَتْ وَأَنَّ اللّهَ مَعَ الْمُؤْمِنِينَ (8:19)

If you have been praying for victory, [O believers] - victory has now indeed come unto you. And if you abstain [from sinning], it will be for your own good; but if you revert to it, We shall revoke [Our promise of aid] - and never will your community be of any avail to you, however great its numbers: for, behold, God is [only] with those who believe!

--- Al-Anfal (8:19)

The inspiration of coming for this struggle goes all to my parents, Mrs. Morsheda Choudhury and Professor Abdul Mannan Choudhury, who have always motivated me to pursue for a PhD.

The intellectual assistance, guidance, and motivation all goes to Dr. Christos Dimitris Tsinopoulos, who have meticulously and with patience have stayed on my side throughout the period.

Looking into the hard times and devastating moments that I have undergone in the last few years, for the moral support and encouragement, I feel indebt to Professor Timothy Clark, who have always asked me to forget the past and carry on with this challenge.

Lastly, I express my gratitude to my love, my friend, my heart, Farhana Khanam Ferdousi to support me in the final days of the preparation of this thesis.

DECLARATION

The thesis is the author's own work and has not been submitted for a degree in any other university. However, the work in this thesis has been discussed in the following papers—

Choudhury, M. M., Tsinopoulos, C. D., and Choudhury, A. M., 2008. A Theoretical Evaluation of the factors that Affect Trust in E-Commerce *In:* 2nd eCASE Conference, 27-30 March 2008, Bangkok, Thailand.

Choudhury, M. M. and Tsinopoulos, C. D. 2007. An interplay of trust and risk in e-commerce. *In:* Connecting Theory into Practice, 10th Annual Conference, 3-5 September 2007, Queens University Belfast, Northern Ireland.

Choudhury, M. M., 2006. Trust and its Role in E-Commerce. *In:* S.S. Simelane and A. Badroodein, ed. *Education and Development in the Commonwealth: Comparative Perspectives.* UK: CSC, 116-123.

Dedicated to the memory of Md. Sherajul Hoque Chowdhury

&

Amina Begum

A STUDY OF THE SIGNIFICANT FACTORS AFFECTING TRUST IN ELECTRONIC COMMERCE

ABSTRACT

E-commerce is the process of buying and selling products and services on the internet. This type of transaction is such that customers are able to see the virtual appearance through images, technical information, and video clips of products/services, but cannot obtain the actual experience of face-to-face touch, smell, and visualization. Such virtual experience coupled with the absence of a seller may create a sense of unreliability and vulnerability in the minds of the customers. Moreover, due to the nature of the internet, users are being susceptible to online frauds arising out of the activities of unscrupulous third parties. All these affect the trust of customers in online transactions and thereby affect online purchase decisions.

A number of studies have been conducted to identify the factors that affect trust in e-commerce. However, none of these studies have been able to provide a comprehensive list of the factors that affect trust. Moreover, some of the studies had problems relating to use of inappropriate sampling techniques and using student samples and hence, raising issues of representativeness and affecting generalizability of the findings. Some studies also had also problems relating to the statistical techniques being used to analyze the data.

Considering these limitations, the present study is undertaken. This present study is complementary to previous studies and aims at answering the following questions: How do we measure trust in online transactions? What are the factors that affect trust in e-commerce? How do the factors affecting trust relate and inter-relate to each other? To answer these questions, a review of the existing literature on factors affecting trust is

conducted. This enables to develop the theoretical framework of the study having a number of hypotheses culminating in the development of a model for trust in e-commerce.

For the study, a normative survey technique was used. An online questionnaire made it possible to enumerate 789 respondents, responses of 703 were usable. The data collected was screened and pre-tested to see whether they qualify for multivariate data analysis. Once this was ensured, statistical techniques such as exploratory factor analysis using principal component analysis, confirmatory factor analysis (CFA), and structural equation modelling (SEM) were applied to test the hypotheses.

The findings of the study show that the factors directly affecting trust in e-commerce are market orientation, perceived security and technological trustworthiness, and relational benefit. Moreover, the findings show that user interface quality affects relational benefit. The two factors, 'importance of websites' reputation' and 'social presence' affect trust indirectly with perceived security and technological trustworthiness playing the mediating role. Another factor, 'perceived product and service information quality' proved to have no relationship with relational benefit.

The analysis of the results explaining the inter-relationships led to the confirmation of the model for trust in e-commerce. This model was further tested across samples with differing web experience, age, gender, and income. There were no significant differences in the parameter estimates of the relationships in the model. This indicates that the model is generalizable across different populations.

In conclusion, the research has certain contributions to existing knowledge. These include—

- The development of a comprehensive model explaining the dependence and inter-dependence of the factors affecting trust in e-commerce.
- Understanding of trust in e-commerce as a multi-dimensional construct consisting of four dimensions— ability, benevolence, integrity, and predictability.
- Understanding the role of the direct and indirect influence of the factors affecting trust that led to reduction in risk perceptions.

Additionally, the research contributes to certain managerial and business practices. Online businesses need to develop their websites to enable convenience in navigation by improving layout and design features of the websites. Moreover, to cater to the tastes and preferences of customers, e-commerce websites need to provide products and service desired suitable by customers. To attract customers, a sense of warmth and human touch need to be introduced in the websites. Coupled with this, there is the need to improve security features and privacy issues.

CHAPTER 1:

INTRODUCTION

1.1 PREAMBLE

Beijing Olympics Hit By Ticketing Scam

The website, www.beijingtickets.com, is being investigated after the International Olympic Committee received complaints from hundreds of people in Britain, the US and Australia who had handed over up to £30,000 for tickets to events in Beijing, only to find the tickets did not exist. The IOC is launching legal action in a Californian court today to shut down the site.

As of July 27, all events – except football matches outside Beijing – have been officially sold out. However the scam website was today still advertising hundreds of tickets for sale, including seats worth $2,150 to this Friday's opening ceremony.

The website features official-looking Olympic logos (which in itself is a breach of copyright) and is so professional looking it reportedly even fooled online fraud specialists.

(Source: www.timesonline.co.uk, August 4, 2008)

Reports of such internet fraud are very common. In the internet, customers make purchases based on the cyberspace appearance such as pictures, images, quality information, and video clips of the product, not on the actual experience (Lohse and Spiller 1998; Kolesar and Galbraith 2000). Here, customers cannot touch, feel or smell

the items and have limited understanding whether the items purchased will meet their personal expectations (Spiller and Lohse 1997). Shopping at an online store is like shopping through a paper catalogue. And therefore being an open media with hardly any barriers to prohibit unwanted intrusions, the chances of loss are high compared to any other media of transactions. Statistics show that in the year 2007, according to the Internet Crime Report issued by the Federal Bureau of Investigation (FBI), customers lost around US $239 million on the internet by engaging in online transactions.

Conversely, the statistics also show that in the year 2007, the amount of internet usage reached 1,215 billion, which is 18.5% of the world's total population[2]. Recent statistics also show that in the mid of the year 2008, the number of people who have purchased from the internet was around 875 million amounting 40 per cent increase in the last 2 years[3]. On the basis of these statistics, it appears that online stores need not be concerned about the issues of customers falling prey to scams. However, with a vision in the future of increasing sales and attracting more customers, online firms are now taking increased precautions in improving features to prohibit cyber fraud and scams (Wales 2003). The main reason for such precautions is actually associated with the desire to attract more customers and protect their interests to enhance sales.

The issues of cyber crime and chances of falling prey to unscrupulous parties have affected the trust of customers in shopping from e-commerce websites (Ribbink et al. 2004; McKnight et al. 1998). In addition to cyber crimes and online fraud, there are also other issues which affect customer trust. For instance, customers may be delivered the wrong product or service beyond what they have ordered for. In extreme cases, payments

[2] http://www.internetworldstats.com/stats.htm [Accessed: 15th October 2008].
[3] http://www.nielsen.com [Accessed: 13th September 2008].

have been made, but customers never have received delivery of their purchased item (Jarvenpaa et al. 2000). There are also concerns about the security measures adopted by the websites in processing transactions and the capacity to protect privacy of users (Park and Kim 2003). There have been cases when credit card information of customers has fallen into the wrong hands resulting in customer incurring huge financial losses later on. The authenticity and legitimacy of the websites are also a critical concern for online customers. All these issues pose threat on online trust concern.

To tackle these issues and to identify the factors that affect trust, a number of studies have been conducted over the last decade. Studies have found that customers choose a website to transact based on the notion that it is trustworthy (Chen 2007, Chen 2006, Quelch and Klein 1996). Then, trust is a fundamental principle of the process to run. It makes a customer choose an e-commerce website for transactions compared to competitors (Brynjolfsson and Smith 2000). Trust makes a person to stick to a website and make future purchases (Corbitt et al. 2003). Additionally, trust makes an individual recommend the websites from which he/she had purchased to other shoppers (Slyke et al. 2002). This can result in increased sales and more profitably on part of the seller.

Thus, trust has been considered as the currency of the web (Urban et al. 2000). By investing on trust in e-commerce websites, more people can be attracted to the websites, encouraged to shop online, build long-term relationships between seller and buyer, and prevent competitors from taking away businesses of the websites (Chen 2007). Therefore, trust is one of the most important marketing tools to attract customers and build a potential market on the net (Keen 1997).

1.2 PROBLEM STATEMENT

In the academic arena, a variety of research has been conducted to find out the factors that affect trust which is indirectly to find out what are the reasons hindering sales online. Some studies have concentrated on online store attributes, especially product related characteristics (Lohse and Spiller 1998; Jarvenpaa and Todd 1997; Bakos 1997) and security issues (Liao and Cheung 2001; Elliot and Fowell 2000; Szymanski and Hise 2000) as factors inhibiting online sales. Other researchers have traced infrastructural issues and lack of governmental initiatives as factors hindering e-commerce (Hawk 2004; Jennex et al. 2004; Chepaitis 2002; Ahmad and Choudhury 2001). Researchers in socio-psychology have identified that whatever attributes an online store possesses or whatever limitations that exist in infrastructural facilities or lack of governmental initiatives, the most important driving force for e-commerce is trust (Corbitt et al. 2003; McKnight et al. 2002a). Trust is a crucial component that, when in existence will encourage online sales, and when not in existence, will result in refused sales or no sales.

Most research on trust in e-commerce has been conducted either to understand formation of trust or to understand how different factors affect trust in the online environment. In exploring the factors affecting trust, most studies (Chen and Barnes 2007; Cyr et al. Mesquita 2007; Ribbink et al. 2004) varied in terms of identifying the factors that affected trust. Some studies (Corbitt et al. 2003; Gefen and Straub 2003; Gefen 2000) have overlapping or repetition of factors with those mentioned in other studies (Gefen and Straub 2004; McKnight et al. 2002a; McKnight et al. 1998). Still other studies (Hawk 2004; Muthitacharoen and Palvia 2002) have had a comparative dimension in enlisting factors across different countries and cultures and showed how they varied in different contexts. To the best of the knowledge, no study has provided a

comprehensive list of the factors that affect trust in e-commerce. Thus, there is a felt need to explore the factors affecting trust and establish inter-relationships of the factors in a comprehensive pattern. This study, therefore, addresses this by obtaining a list of the factors from review of the existing literature leading to the development of the model for trust in e-commerce.

In addition, on review of the past literature, a number of other issues have been cited. For instance, some studies focused on factors affecting initial trust formation (Chen and Barnes 2007; Kim 2003; McKnight et al. 2002a; McKnight et al. 1998) rather than understanding trust as a whole. Moreover, some studies resorted to using inappropriate sampling techniques and small sample sizes (Kim 2003; Corbitt et al. 2003; Jarvenpaa et al. 2000) as well as used student populations as respondents to the survey (Cyr et al. 2007; Slyke et al. 2006; Ribbink et al. 2004; Corbitt et al. 2003; McKnight et al. 2002a). These, therefore, posed problems of generalizability and raised issues of representativeness. Moreover, some studies were conducted in specific control setting where perceptions of respondents were drawn based on browsing of pre-selected websites chosen by the researcher. Thus, there is a need to conduct a study to overcome all these limitations.

1.3 UTILITY OF THE STUDY

This study is complementary to previous studies in identifying the factors affecting trust in e-commerce. By reviewing the existing literature, the study strives to identify the factors that affect trust in e-commerce. From the theoretical perspective, this study advances the current knowledge of customer trust by proposing a theoretical model to

explain the factors that affect trust and providing the inter-relationship of these factors. From the managerial perspective, this study provides insights to online businesses to focus on age and gender differences on influences of the different factors on trust as well as issues of website design and overall layout of the websites.

1.4 RESEARCH QUESTIONS AND OBJECTIVE OF THE STUDY

The major objective of this study is to identify the factors affecting trust in e-commerce and to develop a model to explain the inter-relationship of these factors. In this connection, the study answers the following questions—

- How do we measure trust in online transactions?
- What are the factors that affect trust in e-commerce?
- How do the factors affecting trust inter-relate to each other?

To answer this question, first of all the constructs to measure trust are determined and validated. Secondly, the major factors affecting trust in online transactions are obtained and identified from existing literature. Finally, the effect of each and all of such factor on trust and other inter-relations with each other through appropriate data analysis is evaluated.

Additionally, in this study, no experimental control setting was established. The data collection aimed at the overall perceptions of respondents to e-commerce websites and online transactions in general. A large sample size has been used to overcome to a certain extent the problems of generalizability (as have been cited by some previous

researchers like Chen and Barnes 2007; Chen 2004; Jarvenpaa et al. 2000). All these have been detailed out in chapter 4.

1.5 ORGANIZATION OF THE THESIS

The thesis is organized into the seven chapters. This summary of the chapters are as follows—

Chapter 1: An Overview of E-Commerce.

This chapter sets forth the preamble, the statement of the problem, the objectives of the study, the need of the study, and the definition of the key terms used throughout this text.

Chapter 2: A Review of Existing Literature

This chapter provides a review of the existing literature to identify the factors that affect trust. Prior to review of the literature, trust has been conceptualized and the dimensions for trust measurement have been pointed out. The factors that affect trust identified will lead to development the hypothesis as explained in the next chapter.

Chapter 3: Theoretical Framework of the Study

In this chapter, on the basis of the existing literature, ten hypotheses have been generated and these have been put together to development of the model for the study.

Chapter 4: Methodology of the study

This chapter explains the research design involved in determination of the population and sample size, development and refinement of data collection instruments, means of data collections, processing of data, and analysis and interpretation of the data.

Chapter 5: Data Analysis and Findings

On the basis of the data collected, this chapter has analyzed the data and provides the findings of the study.

Chapter 6: Discussions

In this chapter, a second look into the findings is taken and the data are further analyzed in order to draw conclusions. More precisely, this chapter has related the findings with the theory developed in the chapters 2 & 3.

Chapter 7: Conclusion

The chapter has provided the summary of the findings, the theoretical and managerial/business contributions of this research, identified the limitations of the study, and pointed out the avenues for further research.

CHAPTER 2:

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter provides a review of the existing literature on trust in e-commerce to obtain, identify, and understand the factors affecting trust in e-commerce. Prior to review of the literature, this study conceptualizes trust by exploring the different definitions of trust in different fields of research. A definition is then chosen which is deemed appropriate for this research. On the basis of the definition obtained, the dimensions of trust are explored. These dimensions form the measures of trust in e-commerce setting, and are explained in more detail in chapter 4. This is followed by explanation of the situation when trust exists and a discussion of the dynamic nature of trust. The chapter ends by identification of the gap in previous studies and explaining the rationale for this research.

2.2 CONCEPTUALIZATIONS OF TRUST

In order to understand and identify the factors that affect trust in e-commerce, it is necessary to first examine the concept of trust. In conceptualizing trust, the first step is to derive a definition of trust suitable for this research context. The next step is to elaborate the dimensions of trust, illustrate the conditions in which trust will exist, and explain the dynamic nature of trust.

2.2.1 Defining Trust

In studying trust, it is imperative to realize that trust in e-commerce is similar to trust in traditional literature (Chen 2004). However in the past, researchers in different fields have studied trust in different ways (Gambetta 1988). Table 2.1 shows a summary of the

definitions grouped into categories of the fields of psychology, sociology/socio-psychology, organizational behaviour, marketing, and MIS/e-commerce. The table provides several of the trust definitions. Interestingly, it is observed that there are some common similarities among the definitions of the authors in a particular field.

TABLE 2.1: Definitions of Trust from Various Perspectives

Psychology

Authors (year)	Definition(s)
Giffin (1967)	Reliance upon the characteristic of an object, or the occurrence of an event, or the behaviour of a person in order to achieve a desired but uncertain objective in a risky situation.
Rotter (1967)	An expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon.
Cook and Wall (1980)	The extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people.
Good (1988)	Based on an individual's theory as to how another person will perform on some future occasion, as a function of that target person's current and previous claims, either implicit or explicit, as to how they will behave.
Gambetta (1988)	A calculated decision to cooperate with specific others, based on information about others' personal qualities and social constraints.
Gambetta (1988: 217)	....the probability that he will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with him.
Fukuyama (1995)	Expectations of regular, honest, cooperative behaviour.

Sociology/Social Psychology

Authors (year)	Definition(s)
Schlenker et al. (1973)	Reliance upon information received from another person about uncertain environmental states and their accompanying outcomes in a risky situation.
Gabarro (1978: 294)	The extent to which one person can predictability in other's behaviour in terms of what is normally expected of a person acting in good faith.
Luhmann (1979)	Confidence in one's expectations used to reduce the complexity of events and gain positive expectations
Barber (1983)	Socially learned and socially confirmed expectations that people have of each other, of the organizations and institutions in which they live, and of the natural and moral social orders that set the fundamental understandings for their lives.
Lewis and Weigert(1985a)	The understanding of a risky course of action on the confident expectation that all persons involved in the action will act competently and dutifully.

Rempel et al. (1985)	Cognition about the trustee
Doney et al. (1998)	Willingness to rely and be dependable upon another. This encompasses trust as a set of beliefs (Fukuyama 1995; Larzelere and Huston 1980; Rotter 1971) and willingness to behave (Luhmann 1979; McAllister 1995).
Burke and Stets (1999)	A belief that the there holds both goodwill and benign intent toward us.

Organizational

Authors (year)	Definition(s)
Deutsch (1960)	An individual's confidence in the intentions and capabilities of a relationship partner and the belief that a relationship partner would behave as one hoped.
Zand (1972)	Consisting of actions that increase one's vulnerability to another whose behaviour is not under one's control in a situation in which the penalty (disutility) one suffers if the other abuses that vulnerability is greater than the benefit (utility) one gains if the other does not abuse that vulnerability.
Zucker (1986)	A set of expectations shared by all those involved in an exchange.
Anderson and Narus (1990)	Expectations about the behaviour of the other company.
Sitkin and Roth (1993)	A belief in a person's competence to perform a specific task under specific circumstances.
Hosmer (1995)	Expectations that the other party will behave in accordance with commitment, negotiate honestly, and not take advantage when opportunity arises.
Mayer et al. (1995)	The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.
McAllister (1995)	The extent to which a person is confident in, and willing to act on the basis of, the words, actions, and decisions of another. Includes cognition-based and affection based trust.
Rousseau et al. (1998)	A psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another.
McKnight et al. (1998)	One believes in, and willing to depend on, another party. Trust intention (one is willing to depend on the other person in a given situation). Trust beliefs (one believes the other person is benevolent, competent, honest, or predictable in a situation).
Schoorman et al. (2007)	Willingness to take risks

Marketing

Authors (year)	Definition(s)
Crosby et al. (1990)	Confidence that the trusted party will behave in the interest of the customer.
Moorman et al. (1993)	A willingness to rely on an exchange partner in whom one has confidence.

Ganesan (1994)	Willingness to rely on a partner in whom one has confidence based on belief in that party's credibility (integrity and ability) and benevolence.
Morgan and Hunt (1994)	Confidence in an exchange partner's reliability and integrity.
Doney and Cannon (1997)	Perceived credibility and benevolence of a target of trust.

E-Commerce/ MIS

Authors (year)	Definition(s)
Gefen and Silver (1999)	Willingness to depend based on beliefs in ability, benevolence, and integrity.
Stewart (1999)	An individual's beliefs about the extent to which a target is likely to behave in a way that is "benevolent, competent, honest, or predictable in a situation.
Gefen (2000)	The confidence a person has in his or her favourable expectations of what other people will do, based, in many cases, on previous interactions.
Gefen (2002)	Willingness to depend based on beliefs in ability, benevolence, and integrity.
Jarvenpaa (2000; p. 47)	Ability and motivation to reliably deliver goods and services of the quality expected by the customer.
Gefen et al. (2003)	Reduction of the social complexity that a consumer faces by allowing the consumer to subjectively rule out the undesirable yet possible behaviours of the e-vendor,

[Derived from the studies of Kim (2003) and Gefen et al. (2003)]

Psychologists assess trust in terms of the attributes of all the identities involved in a trusting relationship and focus on a host of internal cognitions that personal attributes yield (Rotter 1971; Rotter 1967). Sociologists examine trust in the socially embedded properties of relationships among people (Granovetter 1985; Lewicki and Bunker 1995) or institutions (Lewicki and Bunker 1995; Zucker 1986). Social and psychological studies emphasize on the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another under conditions of risk and interdependence (Rousseau et al. 1998; Good 1988; Gambetta 1988). It also involves willingness to rely and be dependable upon another (Doney et al. 1998). Organizational studies deal with trust in terms of within or between firms rewarding interactions (Rousseau et al., 1998). Here, trust is focused willingness to be vulnerable (Zand 1972; Mayer et al. 1995; McAllister 1995; Rousseau et al. 1998) or willingness to take risks

(Schoorman et al. 2007). In marketing, trust is considered as one of the important factors for relationship marketing (e.g., Morgan and Hunt 1994). Economists treat trust as calculative (Williamson 1993) or institutional process (Rousseau et al. 1998; North 1990). It is the willingness to rely on the exchange partner (Moorman et al. 1993; Ganesan 1994) and belief that the other party will behave to the best interest of the consumer (Crosby et al. 1990). And, in MIS/e-commerce field, researchers emphasize trust as an integral component of online transactions (McKnight et al. 2002a).

Bhattacharya et al. (1998) and Rousseau et al. (1998) on synthesizing the key elements of trust in different studies, and suggest that despite the differences in emphasis and approach, not many differences exist in the definition of trust in different disciplines. This may be obtained by looking into the different definitions as shown in table 2.1. Precisely, each definition assumes its frame of reference and perspective on the phenomenon (trust) without effectively articulating the parameters of that frame (Lewicki and Bunker 1995). All the disciplines are seeking some common elements underlying trust, which include its nature, antecedents, consequences, and factors that impact trust.

As seen in table 2.1, the definitions of trust in the MIS/e-commerce field were derived from the areas of organizational studies and social psychology. Most of the definitions have been found to be complementary to each other and express it as a means of being vulnerable by expecting the other party to act to the best interest of the other party (Gefen 2002; Jarvenpaa et al. 2000; Gefen and Silver 1999; Jarvenpaa and Tractinsky 1999).

The basis that most definitions in the field of MIS/E-Commerce have been derived from sociology, psychology, and organizational studies also prompt this researcher to introduce a definition for this study from any of these areas. One of the definitions that have obtained well repute and has been derived from the field of organizational studies is that of Mayer et al. (1995). Mayer et al. (1995) define trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party". This definition has been cited by as many as 709 authors[4] and therefore is considered as the most acceptable and influential definition of trust. The definition firstly, says that trust is a 'behaviour' (e.g. willingness) and a 'choice' (e.g. taking a risk). Secondly, it encompasses the condition under which a person will trust that is, the condition of risk where a person who trusts assesses the vulnerability and uncertainty as to the other party acting in the interest of the trustor (Schoorman et al. 2007; Rousseau et al. 1998; and Zand 1972). Finally, this definition focuses on the characteristics of the trustee in performing the action. To perform these actions there requires some characteristics of the trustee, which are ability, benevolence, and integrity (Mayer and Davis 1999). Thus, this definition seems applicable for this study on the basis of these arguments and is in line with the other definitions in the MIS/e-commerce fields.

2.2.2 Dimensions of Trust

Researchers (Mayer and Davis 1999) on analysis of the definition cited by Mayer et al. (1995) have identified that there are three dimensions of trust, viz. ability, benevolence, and integrity. These dimensions serve as the conceptual basis for establishing the

[4] *Source:* ISI Web of Knowledge

measurement items for trust in e-commerce. However, before drawing on the literature for operationalization of trust measure, there needs an effort to remove the confusions of how trust has been viewed in different ways by different researchers (McKnight et al. 2002a, 1998; Shapiro 1987; Lewis and Weigert 1985b).

It has been observed that some researchers (Doney and Cannon 1997; Ganesan 1994; Gefen and Silver 1999; Giffin 1967; Larzelere and Huston 1980) view trust as a set of *specific beliefs* consisting of integrity, benevolence, and ability of another party. Other researchers (Gefen 2000; Hosmer 1995; Moorman et al. 1992; Zucker 1986) see trust as a *general belief* that another party can be trusted, sometimes also called trusting intentions (McKnight et al. 1998) or "the 'willingness' of a party to be vulnerable to the actions of another" (Mayer et al. 1995, p. 712). Some researchers have combined the specific beliefs and the general belief into one construct (Doney and Cannon 1997). Other researchers have split these two conceptualizations, declaring the specific beliefs as antecedents to the general belief (Jarvenpaa and Tractinsky 1999; Mayer and Davis 1999; Mayer et al. 1995), sometimes naming the specific process beliefs as trustworthiness (Jarvenpaa and Tractinsky 1999) and sometimes conceptualizing the specific beliefs as antecedents to trusting intentions (McKnight et al. 1998).

In this study, trust is viewed as a set of specific beliefs. This is in line with the study of Gefen et al. (2003), where they view trust similarly as a specific belief and evaluated trust as emergence of a new technology. This conceptualization is based on the idea that there is a separation between trust and actual behavioral intentions in the ongoing economic relationship of customers and e-vendors. This conceptualization is akin to other studies dealing with ongoing economic relationships (Gefen 2002; Doney and Cannon

1997; Ganesan 1994; Crosby et al. 1990; Schurr and Ozanne 1985), including those with e-vendors (Jarvenpaa et al. 2000).

In exploring trust as a specific belief, there has been a disagreement amongst authors about what are the specific dimensions that characterizes trust. For instance, Mesquita (2007), Lauer and Deng (2007), Chen and Dhillon (2003), and McKnight et al. (2002a) have mentioned that ability/competence, benevolence, and integrity are the most prominent dimensions of trust. Other researchers like Butler (1991) had cited 10 characteristics of trust and Sheppard and Sherman (1998) identified about eight (8) of these characteristics. A summary of the reviews of the dimensions as cited by various authors are presented in table 2.2.

TABLE 2.2: Trusting Dimensions identified by Different Authors

Author(s)	Trusting factors
Boyle and Bonacich (1970)	Past interactions, index of caution based on prisoners dilemma outcome
Butler (1991)	Availability, competence, consistency, discreetness, fairness, integrity, loyalty, openness, promise fulfillment, receptivity
Cook and Wall (1980)	Trustworthy intentions, ability
Dasgupta (1988)	Credible threat of punishment, credibility of promises
Doney and Cannon (1997)	Perceived credibility (integrity) and benevolence.
Deutsch (1960)	Ability, intention to produce
Farris et al. (1973)	Openness, ownership of feelings, experimentation with new behavior, group norms
Frost et al. (1978)	Dependence on trustee, altruism
Gabarro (1978)	Openness, previous outcomes
Ganesan (1994)	Credibility (integrity and ability), benevolence.
Giffin (1967)	Expertness, reliability as information source, intentions, dynamism, personal attraction, reputation
Gefen (2002)	Ability, benevolence, and integrity.
Gefen and Silver (1999)	Ability, benevolence, and integrity.
Good (1988)	Ability, intention, trustees' claims about how (they) will behave
Hart et al. (1986)	Openness/congruity, shared values, autonomy/feedback

Hovland et al. (1953)	Expertise, motivation to lie
Johnson-George and Swap (1982)	Reliability
Jones et al. (1975)	Ability, behavior is relevant to the individual's needs and desires
Kee and Knox (1970)	Competence, motives
Korsgaard et al. (1995)	Goodwill, honesty, sincerity, and unbiased
Kumar et al. (1995)	Honesty and benevolence.
Lauer and Deng (2007)	Ability, benevolence, and integrity.
Larzelere and Huston (1980)	Benevolence, honesty
Lieberman (1981)	Competence, integrity
Mayer et al. (1995)	Ability, benevolence, and integrity.
Mayer and Davis (1999)	Ability, benevolence, and integrity.
McKnight et al. (1998, 2002a)	Competence benevolence, and integrity.
Mesquita (2007)	Competence, benevolence, and honesty
Mishra (In press)	Competence, openness, caring, reliability
Mishra and Morrissey (1990)	Integrity, character, ability, confidence and support
Morgan and Hunt (1994)	Overall trust and integrity
Pavlou and Gefen (2002)	Reliable, honest, and trustworthy
Ring and Van de Ven (1992)	Moral integrity, goodwill
Rempel et al. (1985)	Benevolence, predictability, and honesty
Rosen and Jerdee (1977)	Judgment or competence, group goals
Schurr and Ozanne (1985)	Fairness, dependability, and openness.
Sheppard and Sherman (1998)	Competence, discretion, reliability, integrity, concern, empathy, predictability, and consistency
Sitkin and Roth (1993)	Ability, value congruence
Solomon (1960)	Benevolence
Strickland (1958)	Benevolence
Wang and Benbasat (2005)	Competence , Benevolence, and Integrity
Zaheer et al. (1998)	Reliability, fairness, predictability.

[Derived partly from Mayer et al. 1995, p. 718]

From the table 2.2, it is observed that there are disagreements amongst researchers on what and how many are the dimensions of trust. To reach a consensus, McKnight et al. (2002a, p. 337-338) reviewed 32 trust articles and books on developing and validating trust measures for e-commerce, which led to identification of 15 factors of trusting beliefs. Apparently, these factors were too many for use in any research on trust and the differences in meaning between them were small. Therefore, McKnight et al. (2002a) used conceptual clustering to categorize these factors into three dimensions, viz. competence, benevolence, and integrity. These three dimensions have been also used by

authors like Chen (2004), McKnight and Chervany (2002) and Bhattacharjee (2002) in their research. However, although it seemed that a consensus has been reached, the disagreement still continued. Authors like Gefen and Straub (2003, 2004), and Choudhury and Tsinopoulos (2007) considered using four dimensions of which there was an extra dimension in addition to the three dimensions stated by McKnight et al. (1998, 2002a). This new dimension was predictability. Predictability has been proposed by authors like Gabarro (1978, p. 294), Dasgupta (1988), Gambetta (1988), Good (1988), Rotter (1967), Friedland (1990), and McKnight and Chervany (2002). Proponents of the four dimensions of trust, (viz. ability, benevolence, integrity, and predictability) mention that these dimensions are comprehensive and provide a parsimonious dimension space for trust formation (Bhattacharjee 2002). Moreover, these dimensions are conceptually distinct as they encompass the different elements of cognitive and affective abstraction of trust (Bhattacharjee 2002; Gefen and Straub 2004). Hence, these four dimensions of trust form the theoretical basis for the proposed trust scale measurements. A clear illustration of these dimensions are provided as follows—

Ability is that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain (Mayer et al. 1995). Some researchers see ability as similar to competence of an individual (Miller 1998). Barber (1983) defines competence as the expectation of technically competent role performance. Some researchers (Nooteboom 1996; Butler 1991; Butler and Cantrell 1984; Lieberman 1981; Rosen and Jerdee 1977; Kee and Knox 1970; Mishra, in press) have considered ability and competence to be synonymous. Literally, the Oxford

Dictionary of English[5] defines competence as 'the *ability* to do something successfully...'. And, therefore it can be inferred that these terms are similar.

Moreover, if the definitions of Mayer et al. (1995) and Barber (1983) are analyzed, it may be observed that both the definitions are denoting competence to performance in some technical area. In the case of e-commerce, the trustee (that is, the online vendor or e-commerce website) must possess the technical know how to perform transactions, which is obviously an indicator of trust. In addition, they must posses the expert use and skill in performing the intended behaviour (carry on online transactions). Perceived lack of these beliefs can undermine perceptions of the trustee's ability (Bhattacharjee 2002).

On the other hand, *benevolence* is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive (Mayer et al. 1995). In other words, it means that the trustee has some specific attachment to the trustor (Mayer et al., 1995). In addition, Bhattacharjee (2002) states that benevolence introduces faith and altruism to the relationship between a trustor and a trustee. This reduces uncertainty and the inclination to guard against opportunistic behaviour. He emphasizes that in case of benevolence, the trustee helps the trustor although he is not required to be helpful or is not rewarded to be helpful. For example, *www.confused.com* gathers insurance quotes for home, auto, pet, and student belongings, and www.pricerunner.co.uk gathers price information for almost all commodities and items sold in the UK market[6]. These websites are well trusted based on the notion that they provide the necessary help to the users even

[5] Oxford Dictionary of English (Accessed from http://www.oed.com [15 March 2008]
[6] Channel 4 advert

though they are not required to do so, Hence, in e-commerce context, the online vendors must be more receptive and open towards the user's needs and proactively ensure in an honest fashion that the interests of the user is guarded. If this issue is assured, then the online vendor is assumed to have benevolence.

The third dimension, *integrity* refers to the trustor's perception that that the trustee will adhere to a set of principles and rules of exchange acceptable to the trustor during and after the exchange (Mayer et al. 1995). In an online transaction, it is necessary that trustees (online vendors) must be reliable to fulfil obligations to trustors (Rempel et al. 1985). McFall (1987 *in:* Mayer et al. 1995) states that the consistency of the trustee's past actions, credible communications about the trustee from other parties, belief that the trustee has a strong sense of justice, and the extent to which the party's actions are congruent with his or her words all affect the degree to which the trustee is judged to have integrity. Perceived integrity instils trustor's confidence in trustee behaviour and reduces perception of risk (Bhattacharjee 2002). In the context of e-commerce, rules of integrity refer to (a) conduct of online transactions, (b) customer service policies after a transaction, and (c) use of the personal information including credit card details (Bhattacharjee 2002).

Online vendors have different ways of building on integrity; e.g. providing information on how the transaction is carried, use of encryption software in dealing with credit cards, and explaining how personal information of the customer will be used by the vendor; informing customers in any change in the existing rules, and complying to the best with these rules and standards. However, adherence to these rules is not adequate; such rules must be interpreted as fair and reasonable and

acceptable by the trustor and hence, integrity will be ensured (Bhattacharjee 2002; McFall 1987).

Integrity or similar constructs have been discussed as dimensions to trust by a number of authors. Butler and Cantrell (1984) states integrity and consistency were trust determinants in their model. Lieberman (1981) states integrity as an important trust factor. Butler (1991) included consistency, integrity, and fairness as antecedents of trust in their analysis of the dimensions of trust. Zaheer et al. (1998) uses fairness as substitute to integrity. Gabarro (1978) suggested that character includes integrity. Hart et al.'s (1986) study on 24 survey items revealed three factors. One of them was openness/congruity (which is similar in meaning to integrity).

Lastly, *predictability* is a means to uncertainty reduction (Lewis and Weigert 1985a). Mayer et al. (1995) point out that there is a relationship between predictability and trust but the association is ambiguous. Gabarro (1978) states that predictability is the extent to which what is expected from a person's behaviour acting in good faith. In an online store it is obvious that the trustee must have the capability to conduct the transactions prudently, which the trustor (customer) may have gradually interpreted from prior engagements. This has lead to the customer in concluding that he/she had a pleasant experience in dealing with that online store.

2.3 SITUATION WHEN TRUST PREVAILS AND THE DYNAMIC NATURE OF TRUST: THE TRUST CYCLE

In an online transaction there are usually two parties involved: the online vendor/seller (the trustee) and the buyer/online customer (trustor). It is obvious that there are some attributes of the trustee that makes one party to have a greater or lesser amount of trust for the other party (Mayer et al. 1995).

For trust to exist there are several reasons. Trust is based on expectations of how another person will behave, based on that person's current and previous and explicit claims (Good 1988). On the contrary, Lieberman (1981) stated that trust is based on a belief of the person's competence and integrity. In the Yale studies on communication and attitude change, Hovland et al. (1953) related credibility (i.e. motivation or lack thereof to lie) with trustworthiness. George and Swap's (1982) measures reveal that they reflect inferences about the trustee for trust to develop. Rousseau et al. (1998) sum up that all conditions lead to two issues: risk and interdependence. Perceived risk is the notion of vulnerability (Pavlou 2002; Raab and Bennett 1998) or probability of loss (Rousseau et al. 1998). Trust is "willingness to take risk" (Schoorman et al. 2007) and "will not exist in situations where there is complete environmental certainty and no risk" (Chen 2007). Risk is created by uncertainty (Schoorman et al. 2007). Uncertainty in e-commerce is two fold: environmental and behavioural. Environmental uncertainty is created from the social environment (Gefen et al. 2003) or the contextual and situational factor outside the relationship between the trusting party (trustor) and the party to be trusted (trustee) [Mayer et al. 1995]. On the other hand behavioural uncertainty arises from whether the trustee will intend to or act as desired by the trustor (Rousseau et al. 1998).

To gain control of the social environment is a problematic task as people are complicated and consider themselves as free agents. In most instances, their behaviour is not necessarily rational or predictable. Such social complication with the necessity to understand people leads to an assortment of social complexity reduction strategies (Gefen et al. 2003). Such strategies usually take the form of engaging in an interdependence relationship with the trustee (Luhmann 1979). This interdependence makes one party achieve the necessary benefits by being reliant on the other (Rousseau et al. 1998) that is, they trust the other party. By trusting, people reduce their perceived social complexity through a belief that may, at times, people can be irrational and understanding (Gefen et al. 2003). They ignore the risk of undesirable but possible future behaviours on the part of the trusted party (Luhmann 1979).

The same scenario is also applicable in the case of the internet. The internet does not have proper regulation and control over the activities of the e-vendor. Consumers have to trust the e-vendor from which they purchase assuming, in reality, that the e-vendor will be ethical and behave in a socially suitable manner, or else the overwhelming social complexity will cause them to avoid purchasing (Gefen 2000). Previous research supports this relationship, showing that trust increases purchase intentions directly (Gefen 2000). In other buyer-seller relationships, trust has been observed to increase purchase behaviour. (Ganesan 1994). This means that trust can form in an interdependence relationship where there is uncertainty and chances of being vulnerable (Jarvenpaa and Tractinsky 1999; Kollock 1999).

Trust is in a state of dynamism; it is not static (Rousseau et al. 1998). Trust changes over time: it "builds, develops, declines, and re-surfaces" (Chen 2007). There are four stages

of trust development (as per Chen 2004). The first stage is initiation where rational inference of an individual develops trust. Trust then becomes stronger through repeated positive interactions. It reaches maturity when there are shared interests, values, and equilibrium between the parties. And, finally it may decline if their chances of vulnerability go on increasing leading to their violations.

Researchers in e-commerce have studied trust in different stages. Initial trust formation has been a focus of studies of Chen (2004), McKnight et al. (2002a), Sinclaire (2007), Kim (2003), and Chen and Barnes (2007). Researchers like Bhattacharya et al. (1998) and Ratnasinghgham (1998) have studied how trust achieves stability. Overall trust has been a scope of study for Chen (2007), Chen (2006), and Choudhury (2006).

2.4 REVIEW OF THE EXISTING LITERATURE ON FACTORS AFFECTING TRUST IN E-COMMERCE

The literature on research exploring the factors affecting trust in e-commerce is small compared to other traditional disciplines. Moreover, most of the researches have been generated in the last 10-15 years with the advent of the internet in the 90s. Early studies on trust and its factors have been traced from conference proceedings and articles in journals of marketing, consumer behaviour, and related subjects.

The review of the literature reveals that research on factors affecting trust have been centred in some specific areas. For instance, previous literature on factors affecting trust have been conducted in the context of initial trust formation and trust in relation to perceived risk associated with online transactions. As time goes on and users acquire

increased familiarity with online transactions, researchers have shifted their focus on customers concern on privacy and security of transactions and their influence on overall trust. Each research stance led to identification of certain factors that affected online trust. In the next sub-sections, the review of the literature enables to obtain the factors that have been identified to affect trust in e-commerce.

Factors affecting Initial Trust Formation

In the context of initial trust formation, one of the studies that attempts to develop and validate trust measures for e-commerce was of McKnight et al. (2002a). Initial trust refers to trust in an unfamiliar trustee, a relationship in which the actors do not yet have credible, meaningful information about, or affective bonds with each other (Bigley and Pearce 1998 *in:* McKnight et al. 2002a, p. 335). In their study (McKnight et al. 2002a), initial trust has been characterized as trusting beliefs comprising of the three dimensions— ability, integrity, and competence (as cited earlier by Mayer et al. 1995). Their findings (McKnight et al. 2002a) show that customers, while first interact with websites, will trust the websites considering it to be honest and benevolent, but may not accept it to be competent in the eyes of the customers to conduct the necessary online business. Moreover, for initial trust development, e-commerce websites must possess institutional based trust. Institutional based trust is characterized by the features of structural assurance and situational normality. Furthermore, their study (McKnight et al. 2002a) revealed that web experience to positively influence institution based trust, and perceived site quality to be highly related with trusting beliefs. These findings led to the implication that customers develop beliefs about a particular website's characteristics based on perception of the website's quality.

In another study, Kim (2003) identified three factors to affect initial trust, viz. company profile, supporting organization, and website quality. Using structural equation modelling and multiple regression analysis for testing the data, the study shows that website quality and company profile have a strong effect on the two dimensions but supporting organization has a significant effect on goodwill but a weak impact on competence. The study also took account of the moderating effect of another variable—propensity of trust (referred as the predisposition developed to trust). Propensity of trust moderated the relationship between company profile and goodwill as well as between website quality and goodwill. It had no moderating impact on any relationships between competence and any of three factors (company profile, supporting organization, and website quality) as well as between goodwill and supporting organization.

In another study using Taiwanese participants, Chen and Barnes (2007) have found that perceived security and privacy, perceived usefulness, perceived willingness to customize products and services, and perceived good reputation are factors that affect initial trust formation. Their study also found, that to enhance trust in websites, there needs to have clear policies stating the privacy and security measures in these e-commerce websites. Additionally, the study specifies that by providing full and detailed information of goods, transaction guidelines, and delivery issues, e-commerce websites can remove customer doubts and improve trust. Lastly, the study shows that if online vendors demonstrate being responsive by customizing the products and services as well as by improving their reputation, the functional barriers of not trusting websites will be removed.

The Relationship of Trust with Perceived Risk

Researchers when dealing with risk in e-commerce found that perceived risk plays an important role as an ingredient in consumer internet decision making process— risk tends to have an inverse relationship with trust; some researchers treated it as a component for influencing trust in e-transactions, others considered it as a part of a model and tried to reveal factors that affect both trust and risk. Research on relationship between trust and risk has been interesting. Some researchers (Pavlou 2003; Donthu and Garcia 1999) found that online shoppers are less risk averse than non-online shoppers are. This leads to the inference that the non-online shoppers or less frequent users of e-commerce are more subjective to the risk associated compared to frequent online shoppers. Lower risk levels associated with e-commerce increases trust and this was also supported by previous researchers (Pavlou 2003; Zeithaml and Bitner 1996; Rogers 1983). Liebermann and Stashevsky (2002) asserted that risk is the perceived barrier to internet shopping and e-marketing. This study was preceded by another study of Introna and Pouloudi (1999) where they found that lack of privacy and security is an important inhibitor to enhance perceived risk in online transactions. Furthermore, Miyazaki and Fernandez (2001) noted that perceived risk is derived from the relative novelty of the internet. Interestingly, Armstrong et al. (2000) derived the issue of internet addiction as a perceived risk and others consider the costs (financial) involved in the transactions as a risk (Sevcik and Bartlett 2001; Pew Research Center 1998; Hoag 1998).

Pavlou (2003) in a study to explain the relationship between intention to transact and other variables like web retailer reputation, satisfaction with previous online transactions, and web shopping frequency, also found out an inverse relationship between perceived risk and trust in e-commerce. The study applied the Technology Acceptance Model

(TAM) derived from the Theory of Reasoned Action to integrate trust and intention to transact with the TAM variables, viz. perceived ease of use and perceived usefulness.

The fact of the relationship of trust and perceived risk has also been supported by researchers like Chen (2006), Corbitt et al. (2003), and Ruyter et al. (2001). Chen (2006) conducted the study in Taiwan using employees of seven corporations and two schools, and derived that the most important factor to influence initial trust is perceived online privacy. On the other hand, Corbitt et al. (2003) found out that there was no relationship between risk and trust in an online setting. They attributed this finding of the study to the use of a small sample size. However, they concluded that people will still participate in e-commerce and have a considerable level of trust with no concern for the perceived risk associated with shopping in that particular e-commerce website.

Drawing on literature from Adoption Process Theory and Signalling Theory to explore customers' attitude and behaviour towards e-commerce from an innovation perspective, Ruyter et al. (2001) identified factors like organization reputation, relative advantage/benefit, and perceived risk as important factors to influence online trust. In addition to explaining how e-commerce as a emerging technology is accepted within an organization, Ruyter et al. (2001) aimed to find out the changes that impact on the attitude and perceptions of people in accepting e-commerce as a new innovation.

Factors affecting Overall Trust

In addition to focusing on initial trust and with the understanding that people are being more internet savvy, a number of studies have been conducted to explore the factors that affect overall trust. One of these studies as mentioned earlier is of Corbitt et al.'s (2003),

where they proposed a number of factors to affect online trust, viz. perceived security and technological trustworthiness, market orientation, perceived site quality, technical trustworthiness, and user experience of the web. However, the findings of the study found that some of the proposed relationships did not receive significant support from the data because of the use of small sample size and inappropriate analysis technique.

To explore the factors that affect trust in e-commerce, researchers (Ribbink et al. 2004; Corbitt et al. 2003) have found that e-commerce websites need to take continuous feedback from the customers, provide after sales service, and deal with any issues relating to the sale with urgency in order to be responsive to customers. This is what is termed as 'market orientation' and has been viewed as a means of developing repeated feedback mechanism from customers (King 1965; Barksdale and Darden 1971; McNamara 1972; and Bell and Emory 1971), where customers are considered as the focal point for business activity. Lawrence (1997) in an examination of Tasmanian SMEs noted that improved marketing and the ability to reach new customers were the most common criteria for adopting and using e-commerce. It was also noted that SMEs were forced to take decisions for e-commerce adoptions by their large trading partners who were considered significant for their businesses (MacGregor and Bunker 1996; MacGregor et al. 1998; Reimenschneider and Mykytyn 2000; and Raymond 2001). Other studies (Power and Sohal 2002; Reimenschneider and Mykytyn 2000) have also found that some firms have adopted e-commerce out of the exerted pressure by customers which is deemed as one of the motivating criteria.

A thing to note that market orientation in the perspective of e-commerce has been conceptualized from the customers' viewpoint (Corbitt et al. 2003) whereas other

researchers (Kohli and Jaworski 1990; Slater and Narver 1994a) emphasized a combination of competitor and customer viewpoint as constituents to market orientation.

In another study, Ha (2004) found that perceived security and privacy were the most important factors that affect brand trust in online bookstores. Brand trust refers to the willingness of the customers to rely on the brand to perform its stated function (Chaudhuri and Holbrook 2001). The study concluded that e-commerce websites should have adequate privacy policies which need to be highlighted in their websites and must also develop mechanisms to enhance perceived security in the eyes of the customers. Here, privacy policies are referred to how the online firms utilize customer information (Smith 2002; Cavoukian and Hamilton 2002; Franzak et al. 2001).

In an attempt to develop a start-up model for B2C e-commerce, Corbitt et al. (2003) combines these two factors: security and privacy and terms it as perceived security and technological trustworthiness. In another study to develop a model for e-retailer trust using a national sample of 908 respondents from USA, Chen (2007) revealed that after sales customer service satisfaction, security, and privacy are the three important factors that affect online trust. The issue of security has been also echoed in a study by Ruppel et al. (2003), where they suggested that in order to withstand competitive pressures and a desire to maintain and build relationships with customers, organizations evenly developed the necessary technology for online businesses to ensure security and trust. Other researchers like Shim et al. (2004) extended the Scale Development Model of Bhattacharjee (2002), which was based on a combination of Fishbein and Ajzen's (1975) social psychology theory for the connection between trust and willingness to transact, and also based on the trust literature of Gefen (2000) and Luhmann (1979), proposed a

model for showing the connection between familiarity and willingness to transact. The study proposed that trust reduces the concern for information privacy and lead to willingness on part of the customer to transact. In addition, they also proposed that familiarity with websites will increase trust for those website and that risk will play a moderating role in influencing trust which will affect willingness to transact and concern for information privacy by the customer. Thus, trust is a key determinant of buyer-seller relationship, and if ensured, customers will be willing to provide and share personal information with e-vendors (Shim et al. 2004; McKnight et al. 2002b).

Concern for information privacy has been also echoed by researchers like Miyazaki and Krishnamurthy (2002) and Smith et al. (1996), where they stated websites need to have mechanisms to communicate the information about privacy protection in the form of privacy seals and policies. This will, therefore, encourage customers to take part in online transactions. Additionally, in another study using participants from a large university in the southeast of United States, Slyke et al. (2006) found out that concern for information privacy affected risk perceptions and online trust in well-known websites as compared to less well-known websites. Study by Lauer and Deng (2007) also showed that online firms which used customers' personal information fairly will have a better competitive advantage over other online firms. This finding supported by other of researchers like Liu et al. (2005), Hoffman et al. (1999), McGraw (1999), Culnan and Armstrong (1999) and Smith (1993) stated that privacy issue of customers has a strong influence on trust.

Contradicting the relationship between trust and concern for internet (information) privacy, Culnan and Armstrong (1999) and Luo (2002) indicate that increasing

perceptions of trust will influence the privacy parameter to permit the customer to determine that the benefits of disclosure of personal information outweigh the risks. This has been supported by McKnight and Chervany (2002) where they asserted that trust is an antecedent of information sharing and it reduces the concern for information privacy in online transactions. They further pose that information sharing may be interpreted as an evidence of reduced concern for internet privacy.

In another study to explore the concept of trust in B2C services, Gefen and Straub (2003, 2004) introduced the concept of social presence as an important factor to contribute to trust in e-commerce. The study was conducted amongst MBA students of mid-Atlantic regional universities of the United States, and two popular websites, viz. *www.amazon.com* and *www.travelocity.com*, were used for the survey. The respondents were asked to take part in the experiment where they were asked to make a hypothetical purchase from the respective websites. Thereafter, the respondents filled-in the questionnaire for the research. Their results tentatively suggested that adding features which will increase the social presence of the website may result in an increased e-consumers' responses. This will indirectly affect the trust and hence lead to purchased behaviour. Similarly Cyr et al. (2007) realized that social presence influenced trust of customers in e-commerce which indirectly affected e-loyalty. The most interesting finding of the study was that females looked for warmth and enjoyment in their web experience, and further concluded that effects of social presence on trust varied amongst gender. Social presence can be created by being more responsive to the customers. This can be done by adding a personal touch such as a personalized greeting on opening the web site. Other ways of being responsive and ensuring the social presence is handling of customers' problems and issues to their best satisfaction (Gefen and Straub 2003).

In other study (Ha 2004), as cited earlier, the researcher identified that word-of-mouth influenced brand trust. The term 'word-of-mouth' has similar meaning with that of reputation and is defined as the informal communication about the characteristics of a business or a product which occurs between customers (Westbrook 1987). Ha (2004) states that word-of-mouth influences brand trust and controls behaviour to influence expectations, perceptions, and attitudes. In another study, Awad and Ragowsky (2008) explain the effect of word-of-mouth on online trust by comparing it across male and female respondents. Their findings show that word-of-mouth about a retailer website contributes more to trust the e-vendor for men than women.

Park and Kim (2003) in a research on purchases in three online bookstores in Korea found product information quality, service information quality, and security perception to influence relational benefit. As stated earlier, Ruyter et al. (2001) states relational benefit as the advantage that customer derive from long term engagements. In another study using online stores of books and travel websites, Jarvenpaa et al. (2000), using a sample of 184 respondents comprising of students, revealed that perceived organizational reputation of an online store affected trust in online purchases, and trust essentially influenced internet shopping behaviour. Additionally, as mentioned earlier, Pavlou (2003) in a study applying the Technology Acceptance Model (TAM) to integrate trust and intention to transact found that online reputation associated with satisfaction of past transactions on part of the customers are significant antecedents for enhancement of trust in online sales.

Using European university students, Ribbink et al.'s (2004) study identified some qualities of online stores which affect trust. These included ease of use, web site design, customization, responsiveness, and assurance. The study related e-quality (website characteristics) with e-satisfaction and e-loyalty.

On studies on gender differences in online purchase, researchers like Garbarino and Strahilevitz (2004) and Rodgers and Harris (2003) show that there is a difference between man and woman in purchasing from the net— woman are less interested towards the internet and are less likely to purchase from the internet compared to man. Slyke et al. (2002, p. 85) state that there might be a number of reasons for this phenomenon and concludes that woman see some form of shopping much of a social activity compared to men, and that if women tend to gain benefit from social aspects of traditional shopping, web-based shopping may be viewed less favourable and would affect women's perceptions of relative advantage and compatibility of web-based shopping. Other researchers (Rodgers and Harris 2003; Sanchez-Franco 2006; Maltby et al. 2003) found that woman are more concerned about the emotional aspects which include the social-experiential and identity-related concerns in shopping whereas man are more concerned about the functional benefits of shopping. Rodgers and Harris (2003) further note that websites may lack perceived emotional benefits which are a trigger to women of not more shopping online compared to men. Venkatesh et al. (2000) also found that performance expectancy is stronger in men and effort expectancy is greater in women. For analysing the purpose of using the internet, Sheehan (1999) and Smith and Whitlark (2001) further found that men and women have different concerns about online shopping. Cyr et al. (2007) in their study of influence of social presence on trust in e-commerce (as cited earlier) revealed that females, as said earlier, looked for warmth and

enjoyment in their web experience, and further concluded that effects of social presence on trust varied amongst gender. Gender studies have also been addressed by Chen (2004) where they stated that gender significantly influences overall trust of e-commerce. However, as cited earlier in the study on exploring the factors effecting online trust in Taiwan, Chen (2006) found no distinct difference between man and woman in trusting online transactions. Additionally, the study revealed that there appears substantial difference in trusting online stores amongst respondents who had more experience of using the internet compared to those who had less experience with the internet.

Thus, the factors so far identified from the review of the existing literature are summarized as in table 2.3. The right-hand column shows the names of the authors who have cited these factors in their studies indicating repetition of some factors in different studies. From the knowledge of past literature, this is a comprehensive view of the antecedents that affect trust in e-commerce and provide the basis for developing the theoretical framework of the study, as discussed in detail in the next chapter.

TABLE 2.3: Factors Identified to Affect Trust in E-Commerce from Existing Literature.

FACTORS	SOURCES/AUTHORS
Risk	Rogers (1983), Zeithaml and Bitner (1996), Donthu and Garcia (1999), Liebermann and Stashevsky (2002), Introna and Pouloudi (1999), Miyazaki and Fernandez (2001), Cheung and Lee (2001), Armstrong et al. (2000), Pew Research Center (1998); Hoag, 1998; Sevcik and Bartlett (2001), McKnight et al. (2002a), McKnight et al. (1998), Ruyter et al. (2001), Corbitt et al. (2003), Slyke et al. (2006).

Perceived security and privacy/ technical trustworthiness	Corbitt et al. (2003), Chen and Barnes (2007), Ha (2004), Franzak et al. (2001), Ruppel et al. (2003), Luo (2002), McKnight and Chervany (2002), McKnight et al. (2002b), Chen (2006), Salisbury et al. (2001), Liu et al. (2004), Chen (2007), Chen (2004).
Market orientation—Feedback from the customers/customization	Corbitt et al. (2003), Kohli and Jaworski (1990), Slater and Narver (1994a), King (1965), Barksdale and Darden (1971), McNamara (1972), Bell and Emory (1971), Srinivasan et al. (2002), Ribbink et al. (2004).
Social presence	Gefen and Straub (2003, 2004), Cyr et al. (2007).
Relational benefit	Park and Kim (2003), Ruyter et al. (2001).
Website quality/User Interface quality	Kim (2003), Park and Kim (2003), Corbitt et al. (2003), Chen (2004), Ribbink et al. (2004).
Product and service information quality	Park and Kim (2003)
Importance of websites' reputation	Pavlou (2003), Chen and Barnes (2007), Jarvenpaa et al. (2000), Ruyter et al. (2001), Chen (2004), Gefen (2000), Luhmann (1979), Park and Kim (2003), Doney et al. (1998), Gulati (1995), Gefen et al. (2003), Ha (2004), Awad and Ragowsky (2008).
Web Experience	Corbitt et al. (2003), McKnight et al. (2002a).

2.5 GAP IN THE EXISTING LITERATURE AND RATIONALE FOR THE STUDY

From the review of the existing literature, the gap identified can be categorized into two— theoretical and methodological.

2.5.1 The Theoretical Gap

None of the previous studies on trust has been capable of providing a comprehensive list of the factors that affected trust in e-commerce. This study, on review of past literature, identified and obtained a list of eight (8) factors. These factors will lead to the development of a model explaining the dependence and inter-dependence relationship between and amongst these factors.

Moreover, previous studies (McKnight et al. 1998; McKnight et al. 2002a; Kim 2003; Chen and Barnes 2007) have focused on initial trust formation. In this study, overall trust is considered which means that the respondents in the study will have previous online shopping experience. Moreover, stages in trust formation are not included in this study although previous researches (McKnight et al. 2002a; McKnight et al. 1998) have done so.

2.5.2 The Methodological Gap

On review of the past literature some methodological weaknesses have been found which this study attempts to overcome. One of this is the use of inadequate sample size (Corbitt et al. 2003; Chen 2006; Jarvenpaa et al. 2000) and the other is the practice of resorting to non-probability sampling (Kim 2003; Corbitt et al. 2003). Researchers themselves (e.g. Chen and Barnes 2007; Corbitt et al. 2003) have posed this problem of lack of representativeness of the sample to the entire population and have recommended for using larger samples in future research. This study uses a reasonably large sample amounting to a minimum of 669 respondents (discussed in more detail in the methodology chapter). Having a large sample size enables to conduct advanced data analysis like structural equation modelling and make it suitable for validating the results

using cross validation (Hair et al. 2006; Brown 2006; Kline 2005; Schumaker and Lomax 2004; Byrne 2001). Moreover, it enables to reach certain level of representativeness as explained later in section 4.10.

Additionally, some researchers (Cyr et al. 2007; Slyke et al. 2006; Ribbink et al. 2004; Corbitt et al. 2003; Gefen and Straub 2004, 2003; McKnight et al. 2002a ; Jarvenpaa et al. 2000) have used student population as samples for their research. This also raised issues of lack of representativeness of the sample to the entire population. It may be observed that in the mid and late 90s, most of the internet usage was concentrated in educational institutions and large corporate bodies[7], and therefore, it may have been difficult for the researchers during that period to gather data from the general population as people had less knowledge about the internet and less experience with online shopping. However, at this present period of time for this research, using a student population is not necessarily the best option as they represent the learned class of respondents, have more knowledge about the web, use the internet more frequently, and belong to a certain young age group. Respondents need to come from different age groups and with differing educational background. These issues are taken in consideration in this study, and in terms of choosing respondents no restrictions are placed in including one category of respondents (such as students).

Unlike some previous studies (Kim 2003; McKnight et al. 2002a; Ruyter et al. 2001) no laboratory settings will be used. This means that no control will be established, which means the respondents will not be subject to any hypothetical judgement of the interpretation of any situation.

[7] See Fortune 2000.

Some studies (e.g. Corbitt et al. 2003; Park and Kim 2003) complained that the analytical methods used in their research were not appropriate for achieving a conclusion. They (Corbitt et al. 2003; Park and Kim 2003) recommended that advanced statistical techniques be used in future research. Therefore, in line with their (Corbitt et al. 2003; Park and Kim 2003; Kim 2003) arguments, this study uses advanced statistical technique such as structural equation modelling, which is suitable for analyzing the relationships as well as the inter-relationships amongst variables simultaneously.

2.6 SUMMARY

By reviewing the existing literature on trust in e-commerce this chapter identified a total of eight (8) factors that affect trust. These include Market Orientation, Perceived Security and Technological Trustworthiness, Social Presence, Relational Benefit, User Interface Quality, Perceived Product and Service Information Quality, Web Experience, and Web Retailer Reputation/Organizational Reputation. These factors will be used in chapter 3 to develop a theoretical framework of the study to explain the relationship and inter-relationships of the factors that affect trust in e-commerce. Additionally, this chapter explains the theoretical and methodological gaps in the previous studies which serve as the impetus for this research to address these weaknesses and limitations.

CHAPTER 3:

THEORETICAL FRAMEWORK OF THE STUDY

Based on the factors identified and obtained from the review of the literature in chapter two, this chapter develops the theoretical framework of the study. The chapter develops ten hypothesised relationships between the factors that affect trust in e-commerce. Therefore this chapter advances the thesis towards addressing the following research question:

- How do these factors relate and inter-relate to each other?

3.1 TRUST IN E-COMMERCE TRANSACTIONS

Trust is generally viewed as an essential ingredient for a successful relationship in any form of transaction irrespective of whether it is carried on in a traditional store or an online store (Berry 1995; Morgan and Hunt 1994; Moorman et al. 1993; Dwyer et al. 1987). The concept of trust is a critical issue to e-commerce researchers as in an online transaction, the trustor (i.e. the customer) does not have direct control over the actions of a trustee (e.g., e-merchant or e-store) because there is no direct contact with the seller and the only media of interacting with the specific online store is the website (Jarvenpaa and Todd 1997). As such this online environment by nature is vague and chances of vulnerability are high on part of the trustor to be a prey to opportunistic behaviour of the seller. This means, for instance, the customer may make payments for the purchase in the internet, but the item may not be delivered to the buyer by the seller. Thus, in the next section, such various risks associated with e-commerce are discussed in detail.

3.2 PERCEIVED RISK

An important factor in this study is perceived risk which may be defined as "the probability of loss as perceived by the decision maker" (Chiles and McMackin 1996; Deutsch 1973; Zand 1972). This is a well established definition in terms of adoption of customers to new technology like e-services (Ruyter et al. 2001). Other authors (Pavlou 2002; Raab and Bennett 1998) termed perceived risk in e-commerce as "the notion of vulnerability which takes place when a person's information is revealed while transacting online". Risk in essence is a loss and involves the chances of being exposed to a situation where an individual realizes that he/she is vulnerable.

A number of studies have identified the components of risk in online shopping. Lim (2003 *in:* Alzola and Robaina 2007) classifies risk in online shopping into three types, viz. perceived technology risk (arising from the very nature of the internet), perceived vendor risk (resulting from dealing with unknown online vendors), and perceived product risk (which is produced from the inability of the customer to physically inspect the product that is being purchased). On the other hand, an earlier study of Bettman (1973) asserts that perceived risk has four components: financial, physical, psychological (or mental) and social. In line with this, Corbitt et al. (2003) recommends decomposing risk in e-commerce into five components, viz. performance, financial, social, psychological, and time. *Performance risk* in e-commerce can be defined as the peril associated with not meeting the expectations of the customer when a good or service is purchased online. *Financial risk* is any monetary loss incurred; *social risk* is more or less associated with the individual's image in the context of how his family, friends, peers, and relatives see him/her in the context of associating him/her in an online transaction;

psychological risk may be inferred as the anxiety and mental pressure incurred or chances of occurrence when a transaction online may go or goes wrong. Finally, the *time risk* is actually the length of the lead time in having the product or service in the customers' disposal when the transaction has been completed online. Thus, these five components of risk illustrated by Corbitt et al. (2003) are consistent with other studies (Jarvenpaa et al. 2000; Tan 1999), and therefore, are also considered the risk components for this research.

Now, since trust and risk in e-commerce has been explained, the next section describes the relationship of the two constructs leading to generation of the hypothesis.

3.2.1 The Relationship between Trust and Perceived Risk

Most studies on trust and risk have predominantly been conducted in industrial and inter-organizational contexts (e.g. Schoorman et al. 2007; Mayer et al. 1995; Doney and Canon 1997). In such contexts trust reduces perceived risk because it creates the perception that sellers will not take advantage of the customer (Geyskens et al. 1998; Anderson and Weitz 1989).

Studies that explore trust and risk in e-commerce have generally been driven from the organizational trust and consumer behaviour bodies of literature (McKnight et al. 1998; Jarvenpaa and Tractinsky 1999; McKnight and Chervany 2002). Studies in e-commerce have found that increased levels of trust positively influence consumers' purchasing behaviour in online stores (Slyke et al. 2006; Chen 2004; Jarvenpaa et al. 2000). Moreover, reduced risk positively influences the attitudinal orientation of consumers toward that store (Jarvenpaa and Todd 1997). That is, when consumers perceive the risk

to be low they are more likely to shop online. Thus, as increased trust and reduced risk both lead to increased purchase behaviour, it can be hypothesized that consumer trust in e-commerce is negatively related to perceived risk, which leads to the first hypothesis—

H1: Consumer trust in e-commerce is negatively related to perceived risk.

3.3 PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS

Security is a concern for both the online store and for the user/customer. Security from the online vendor point of view is concerned with the incorrect information and fraudulent actions detections (Corbitt et al. 2003). From the user point of view, security issues in electronic commerce can be divided into concerns relating to disclosing personal information and concerns relating to securing economic transactions (Ratnasingham 1998; Rowley 1996). Concerns about user information arise when customers are prompted to input their personal information during transactions. Some researchers have termed this as 'personal information privacy' (Shim et al. 2004) or 'perceived privacy' (Chen and Barnes 2007; Chen 2004). Personal privacy is ensured when customers can control the information that they provide when engaging in e-commerce. This means that customers exercise control by prohibiting their personal information to fall in the hands of other people in the online environment during a transaction (Goodwin 1991, p. 152 *in:* Chen and Barnes 2007). Furthermore, Websites can provide detailed policies on how personal information is being utilized and how unwanted parties are prohibited from accessing information in the website (Shim et al. 2004). On the other hand, concerns for securing economic transactions arise when customers insert credit card details and other financial information necessary to process a transaction online.

Now, technological trustworthiness is the technological capacity to conduct transactions for the best interest of the customers (Corbitt et al. 2003). Security and technological trustworthiness in an online transaction are closely linked. There are various features which can be adopted by e-commerce websites to demonstrate technological trustworthiness. These include Secured Socket Layer (SSL) certificates (offered by VeriSign©), which demonstrate that personal information provided in their websites are safe, and Paypal™'s security token[8], which generates a random code which is then used as part of the login process for the website. Additionally, e-commerce websites also use technologies of third party websites (e.g. GoogleCheckout™) to process financial transactions. This ensures that the online vendor cannot access customers' financial details.

Previous studies show that there are clear benefits when online stores introduce security measures (Brown and Muchira 2004). Salisbury et al. (2001) found that there is an increase in sales and loyalty in e-commerce websites that are cautious in dealing with customer information. Furthermore Chen and Barnes (2007) argue that customers will disclose personal information if they feel that e-commerce websites are credible and reliable. If there are any violations in personal information and transactions, customers will avoid those websites (Brown and Muchira 2004). Thus, security and technological trustworthiness supporting the e-commerce transaction affects consumers' trust (Liu et al. 2005). Therefore, it can be proposed that perceived security and technological

[8] Source: http://news.bbc.co.uk/1/hi/technology/6357835.stm

trustworthiness is positively related to trust in e-commerce. Hence the second hypothesis is—

> *H2: Perceived security and technological trustworthiness is positively related to trust in e-commerce.*

3.4 MARKET ORIENTATION

Market orientation is the ability of a firm to generate, disseminate, and use superior information about customers and competitors (Kohli and Jaworski 1990). As stated earlier, market orientation has two behavioural components, customer responsiveness and competitor responsiveness (Slater and Narver 1994a). These two components have had limited effect on market performance, but there is emphasis in understanding the trade-offs that come from customers' and competitors' monitoring despite the limited resources of the businesses to generate market intelligence (Uncles 2000; Kohli and Jaworski 1990). Customer focus relates to making the businesses 'customer preoccupied' (Heins 2000). More specifically, it relates to the processes and activities concerned with creating and satisfying customers by continuously assessing their needs and wants, and doing so in a way that there is a demonstrable and measurable impact on the business performances (Uncles 2000). Competitor focus relates to using target rivals as frame of reference, to identify what technologies they use, and what alternative products and services they offer to the target customers (Slater and Narver 1994b).

To explore market orientation in e-commerce websites, most researchers have mainly concentrated on customer focus and less so on competitor focus (e.g. Corbitt et al. 2003). This is because today's businesses increasingly see their customers as a focal point for

business activities and consider the profit as a consequence of customer orientation (McNamara 1972; Barksdale and Darden 1971; Bell and Emory 1971; King 1965). This research also uses customer focus due to its established significance to firm performance.

In order to facilitate market orientation in online businesses, most e-commerce web sites collect customer's information on a continuous basis. This information is used to customise products/services to cater to the individual tastes of customers, and to develop the website. Furthermore, such information enables e-commerce websites to maintain close contact with customers, and to respond to customer's problems in real time. (Corbitt et al. 2003; Ahmad and Choudhury 2000). When customers perceive that the e-commerce websites (a) are performing activities for fulfilling their needs, (b) are being responsive about their tastes, and (c) are showing importance to their opinions, they will also consider them as trustworthy (Corbitt et al. 2003). This means that customers will have more trust in e-commerce websites that demonstrate market orientation. Hence, it can be hypothesized that—

> *H3: Perceived market orientation is positively related to trust in e-commerce websites.*

3.5 SOCIAL PRESENCE

Social presence is "*the extent to which a medium allows a user to experience others as being psychologically present*" (Fulk et al. 1987 *in:* Gefen and Straub 2003). It is the capacity to transmit information about facial expression, direction of looking, posture, dress and non-verbal cues and involves the factor of interpersonal interaction between individuals (Gefen and Straub 2004).

In a traditional store, customers feel they can gauge the trustworthiness of the seller through their body language and through environmental cues present in that store. In an online environment these cues are missing as there is no physical presence of a seller to process transactions or to deal with the queries of the buyer (Frederick 2000). As a result, the chances of not trusting these e-commerce websites are higher, and hence customers may often feel reluctant to buy from online stores.

To deal with this reluctance, several websites have developed passive and interactive ways of improving social presence in online stores. Passive ways aim at reminding customers that there is a human side to the online transaction and include showing emotive texts and pictures of humans (Hassanein and Head 2006), using human audio (Lombard and Ditton 1997), providing a human video through flash media (Kumar and Benbasat 2002), and adding a personalized greeting when opening a website (Gefen and Straub 2004). The interactive ways aim at dealing with individualised customers' requests in real (or near real) time and include online chat portals, artificial intelligence driven animated interactive portals[9], emails, etc. Furthermore, some websites, like traveline.com and nationalexpress.com, provide frequent news updates such as newsletters sent to customers in regular intervals to create the understanding that they are present virtually.

Researchers have argued that increasing the social presence of a new technology increases the users' confidence in using that technology (Cyr et al. 2007; Gefen and Straub 2004). This is so because customers feel that there is a human seller on the other

[9] Such as in http://*www.ikea.com*

side with whom they interact during the selling process. Therefore, their doubts of shopping online are reduced and consequently their trust towards those websites is increased. Hence it can be hypothesized that—

H4: Social presence is positively related to customers' trust in e-commerce websites.

3.6 RELATIONAL BENEFIT

Relational benefit is "the benefit customers receive from long-term relationships above and beyond the core service performance" (Gwinner *et al.* 1998). It is considered as one of the key reasons for developing a long-term relationship in online business (Ravald and Grönroos 1996; Gwinner *et al.* 1998; Patterson and Smith 2001). The usual outcomes of relational benefit are to achieve greater efficiency of customers' decision making, reduce information processing, and reduce the perceived risks associated with future choices (Sheth and Parvatiyar 1995).

An example of an online store providing better advantages over other service providers is that of *www.easyjet.*com. *www.easyjet.com* is considered as the airline that provides certain unique benefits which surpasses other airlines and travel agents. Other airlines provide online booking with e-ticket facilities and reserve seats for boarding online. *www.easyjet.com*, in addition to online selling of tickets, sells the tickets at cheaper prices and the flights are more frequent than other airlines. Additionally, *www.easyjet.com* enables to book hotels, reserve cars, and also pay parking fees in airports. The credit card offered by *www.easyjet.com* enables to gather points and thereby provide further reductions in air tickets. Other travel websites are not providing

as many benefits and therefore, *www.easyjet.com* provide a better advantage to customers than other airline provides.

If the benefits associated in a current exchange relationship are perceived to be higher to those associated with alternative relationships, customers will stick to the ones providing the better benefits (Ruyter et al. 2001). The benefits that accrue from such long term engagements induce an emotional and judgmental reaction in the minds of the customers to support the relationship (Park and Kim 2003). Over time, such involvements with the exchange partner (for example, the online vendors) will lead to confidence to these partners (Pavlou 2003) which in turn should lead to trust. Consequently, relational benefit received by a customer from an online store will contribute to trust development. Thus, it can be hypothesized that—

H5: Relational benefit is positively related to trust in e-commerce.

3.7 USER INTERFACE QUALITY

User interface quality relates to the layout, navigation, and convenience to browse e-commerce websites (Szymanski and Hise 2000; Spiller and Lohse 1997). Other researchers (DeLone & McLean 2003 and Bharati & Chaudhury 2004 *in:* Lin 2007a) term user interface quality as websites' systems quality and include features such as, search functions, guided navigation, and site maps in the website (Lin 2007a; Bharati and Chaudhury 2004; Park and Kim 2003; DeLone and McLean 2003). Additionally, speed and support for conducting transaction are features that make a website user friendly (Barnes and Vidgen 2001; Loiacono 2000). Such features are essential components of e-commerce websites and often aim at reducing anxiety (particularly for new users),

and making decision making easier (Morris and Turner 2001; Gefen and Straub 2000; Venkatesh 2000; Venkatesh and Davis 2000; Davis 1989).

As explained in the previous section, relational benefit is achieved when the benefits associated with an alternative relationship are lower to the ones achieved through the current relationship. Within the context of e-commerce websites, user interface quality and the eventual familiarity that stems from a well designed website, can be perceived by users as a key benefit (Lai et al. 2007). Therefore, higher levels of user interface quality will lead to higher relations benefit. Thus, it can be hypothesised that—

H6 (a): User interface quality is positively related to relational benefit.

3.8 PERCEIVED PRODUCT AND SERVICE INFORMATION QUALITY

Park and Kim (2003) divide information offered by an online store into two types: product information and service information. Product information relates to the product (or service) the user is buying from the website and includes product attributes, consumer recommendations, evaluation reports, etc. (Lin 2007a; Park and Kim 2003). Service information relates to the process a user has to follow to purchase the product (or service) and includes membership information, frequently asked questions pages (FAQs), ordering and delivering information, and promotion (Park and Kim 2003).

As explained earlier, relational benefit aims at achieving greater efficiency of customers' decision making, reducing information processing, and reducing the perceived risks associated with future choices (Wolfinbarger and Gilly 2001, Sheth and Parvatiyar 1995). When product and service information is helpful, relevant, up-to-date, consistent,

and simple customers can process it quicker and thus make quick low risk decisions (Zhang *et al.* 2000; Wang and Strong 1996). Therefore, high perceived product and service information quality should lead to higher relational benefit. Therefore, it can be hypothesized that:

H6 (b): Perceived product and service information is positively related to relational benefit.

3.9 IMPORTANCE OF WEBSITE REPUTATION

A number of authors emphasize website/organization reputation as one of the precursors of trust in a buyer-seller relationship (Yoon 2002; Jarvenpaa et al 2000; Doney and Cannon 1997; Ganesan 1994; Anderson and Weitz 1989). In the e-commerce context, reputation has been termed as the image that buyers have about the e-commerce (Doney and Canon 1997). The concept of website reputation is derived from the signalling theory. The signalling theory explains why the reputation of an organization could provide the customer with additional information in the form of *signals*, which is believed to further the customers' online purchase behaviour (Rogers 1983). The crux of signalling theory is that the customer will perceive strategies, actions, or other organizational aspects in market interaction as costly for bad businesses and profitable for good ones (Ippolito 1990). A strategy that is perceived to be differentiating between good and bad businesses is called a *signal* (Boulding and Kirmani 1993). Therefore, to have confidence and trust in any businesses, the customers will look for such 'signals'. Signals may indicate that an organization is bad and thus dealing with it is costly, or that it is good and thus dealing with them is profitable (Ruyter et al. 2001). Thus, customers using these signals can interpret the information available about the e-commerce

websites, in a way that helps them decide whether to make a purchase from the website or not (Boulding and Kirmani 1993). If positive, the interpreted information will have a profound effect on the customer attitude and behaviour towards the e-commerce website. This is 'good reputation' and is a valuable asset for e-commerce websites (Jarvenpaa et al. 2000).

It is often perceived that organizations with a good reputation are placing great importance on maintaining it (Ruyter et al. 2001; Chiles and McMackin 1996). Such organizations will incur high costs (in the form of loss of reputation) when they deliver bad products or services to their customers (Axelrod 1984). On the other hand organisations with bad reputation will not incur these costs as they do not attach value to the loss of reputation. Thus, customers are more likely to trust those e-commerce organizations that have a good reputation (Ruyter et al. 2001; McKnight and Chervany 2002). Therefore it is hypothesised that—

H7: Importance of website's reputation significantly influences customers' trust in e-commerce.

The link between reputation and trust of e-commerce websites has been examined before by Ruyter et al. (2001) and Jarvenpaa et al. (2000). However, these two studies focused on the reputation of specific websites (previously pre-selected by the researchers). Therefore, they did not examine the general importance placed on reputation by customers. As will be explained in the methodology chapter, this study will focus more generally of the importance placed by consumers on a website's reputation rather than the reputation of a specific website.

3.10 WEB EXPERIENCE

The concept of web experience implies that the user develops and gathers the knowledge, ideas, and all available cues for online transactions. Researchers have derived that web experience is an integral component affecting trust in e-commerce (So et al. 2005; Corbitt et al. 2003; Pavlou 2003). In an online business environment, customers' ability to purchase from the internet will depend on his/her ability to surf the web pages. It does not only include mere browsing of the pages but includes processes involving input of credit card details and exploration of the features of the products and services that are aimed to be purchased. An interaction with the web leads to a positive feeling towards a website. This is consistent with the findings of Heider (1958), where the author posits that people tend to develop a positive attitude toward those with whom they have had some prior association. The more experienced the internet user that is, the greater the prior association with e-commerce websites, the more positive attitude they will develop towards e-commerce (Corbitt et al. 2003). The web consists of cues, information, and a variety of day-to-day updates. Thus, web experience will generally refer to the acquaintance of a user to most of the attributes and features of the web and a tendency to engage in a variety of activities.

Authors like Hoffman et al. (1999) conclude that the level of factors of not shopping online also decreases as online skill increases, which means that if customers acquire more experience on the web, the less important are to them the functional barriers to online shopping, and also less concerns for security and privacy issues. In essence, high users of the web are more convinced with the perceived security and privacy issues of

shopping online, and will have more trust in e-commerce. Thus, it can be hypothesized that—

H8(a):High Levels of perceived security and technological trustworthiness will lead to high levels of trust for customers with more experience of the web compared to customers with low experience.

Similarly, Miyazaki and Fernandez (2001), in a study on privacy and security issues and associated risk in online shopping, reported that web experience is negatively related to perceived risk of conducting online transactions. This means that as customers browse and purchase from the internet, they gather more information from their experience. The result is increased trust and reduced risk.

Miyazaki and Fernandez's (2001) study used limited sample size and they themselves were concerned about the generalizability of their findings. Therefore, as per their recommendations, their findings require further testing using large samples. In this study, a large sample is being used. Hence, it is worth testing whether web experience influences the relationship of trust and perceived risk. Therefore, it can be hypothesized that—

H8(b):High Levels of trust will lead to lower levels of risk for customers with more experience of the web compared to customers with low experience.

3.11 SUMMARY OF HYPOTHESES

Based on the arguments and evidences placed above, the hypotheses are:

H1 Consumer trust in e-commerce is negatively related to perceived risk in e-commerce.

H2 Perceived security and technological trustworthiness is positively related to trust in e-commerce.

H3 Perceived market orientation is positively related to trust in e-commerce websites.

H4 Social presence is positively related to customers' trust in e-commerce websites.

H5 Relational benefit is positively related to trust in e-commerce.

H6 (a) User interface quality is positively related to relational benefit.

H6 (b) Perceived product and service information is positively related to relational benefit.

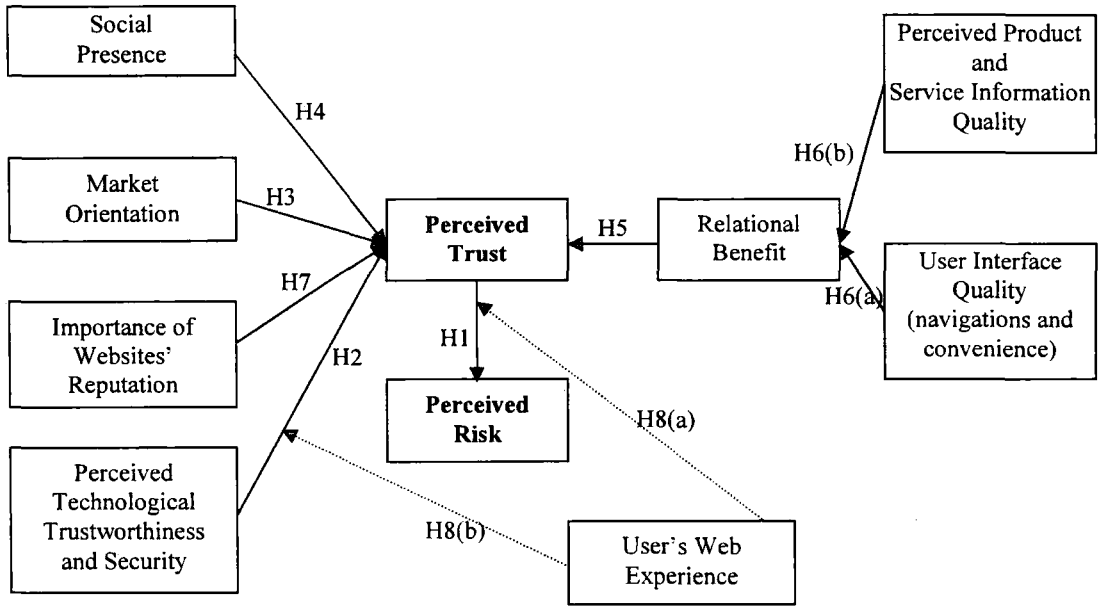
H7 Importance of websites' reputation significantly influences customers' trust in e-commerce.

H8 (a) High Levels of perceived security and technological trustworthiness will lead to high levels of trust for customers with more experience of the web compared to customers with low experience.

H8 (b) High Levels of trust will lead to lower levels of risk for customers with more experience of the web compared to customers with low experience.

The hypothesized relationships are depicted in the theoretical framework of figure 3.1.

FIGURE 3.1: Proposed Model of the Factors affecting Trust in E-Commerce



3.12 SUMMARY

This chapter derives a total of ten (10) hypotheses for testing and explaining the relationships and inter-relationships amongst the factors that affect trust in e-commerce. This leads to the development of the theoretical model which will be tested based on the research methodology adopted and the data analysis conducted in this study. The model consists of eight (8) factors affecting trust directly and indirectly.

CHAPTER 4:

METHODOLOGY OF THE STUDY

This chapter presents the research methodology for this study. The first section provides an explanation on the choice of the methodology used. This is followed by description of the research design including operationalization of the variables, pretesting of the questionnaire, and making the final adjustments for ultimate development of the questionnaire. The discussion also describes the development and implementation of the online survey. The chapter also explains the rationale for choosing the specific data analysis technique (structural equation modelling) and ends with a discussion of the ethical issues in this research.

4.1 CHOOSING THE METHODOLOGY FOR THE RESEARCH

A methodology is an overall approach to a research process including the theoretical and philosophical assumptions upon which research is based to the collection of data for reaching an implication (Saunders et al. 2007, p. 602). "Like theories, methodologies cannot be true or false, only more or less useful" (Silverman 1994, p.2). Methodologies have been distinguished from method; method is various means by which data can be collected and/or analysed (Collis and Hussey 2003). Thus, methodology is concerned with the following main issues:

- Why the data is collected? (e.g. to identify the factors that affect trust in e-commerce and to measure trust in e-commerce settings).
- What data is collected? (e.g. primary data about the perceptions of customers in the form of responses to questions about the variables that affect trust).

- Where is the data collected from? (e.g. from the online customers).
- When was the data collected? (e.g. within a span of $3^1/_2$-4 months).
- How was the data collected? (e.g. through an online survey which was sent to respondents through e-mail invitations).
- How will the data be analyzed? (e.g. using appropriate multivariate data analysis techniques with the capability of explaining inter-relationships between variables).

The research methodology to be chosen for a study will depend on the objectives and research questions of the study (Saunders et al. 2007). The main objective of this study is to obtain a comprehensive list of factors that affect trust in e-commerce. The research questions as specified in chapter 1 earlier include: How to measure trust? What are the factors that affect trust? How do the factors relate and inter-relate to each other?

Therefore, to explain the possible relationships between factors and to produce a model out of these relationships, a survey technique is adopted in this study. There are several other reasons for using a survey technique. Firstly, the survey technique is suitable when a population is too large to observe directly. As it will be shown in later sections of this chapter the population involved in this study is large. Secondly, it allows the collection of a large amount of data from a sample drawn from a population (Collis and Hussey 2003). The later sections will explain how a sample will be used to collect the data. Thirdly, a survey is used when the researcher wants to measure attitudes and orientations in a large population (Babbie 1995). As one of the objectives of this study is to measure trust, survey is suitable as it can capture the attitudinal issues associated with trust in e-commerce websites. Lastly, the survey enables the collection of quantitative data that can be subject to descriptive and inferential statistics. Using appropriate statistics, the data collected in the survey will be analyzed to

explain the relationships and the inter-relationships amongst the factors affecting trust (as described later in chapter 5).

A survey usually uses a questionnaire to collect data although there are other survey techniques such as structured observations and structured interviews. Questionnaires are mostly suitable when there are standardized questions. This is because they are easy to be interpreted in the same way by all the respondents (Robson 2002). It also serves the purpose of collecting responses that can be translated to data to examine and explore the relationship between variables in a particular cause-and-effect relationship (Gill and Johnson 2002). Questionnaires are also preferable in situations when the population is large (Saunders et al. 2007). As stated later, an online survey will be used to collect responses, and therefore, for this situation a questionnaire will be considered highly suitable (Chen 2004). The determination of the choice of using a questionnaire also depends on the type of respondents (Saunders et al. 2007). As mentioned earlier that this study is aimed for online consumers, and to reach this particular group of respondents, the most appropriate technique will be to use a self-administered online questionnaire. An online survey will serve as a natural filter to exclude individuals who have never had used the internet. This is made possible by introducing control variables enabled with specific programming features installed on the website (which is discussed in more detail later).

However, there are certain drawbacks in using questionnaires. A questionnaire will not be capable of covering all the questions in the survey for the respondents to answer. However, researchers attempt to include as much as questions required for the study. Moreover, there may be cases when the respondents are not honestly answering the questions to the best interest of the researcher. This is a drawback which can hardly be controlled by the

researcher. In some instances, close observations of the responses to the questions can indicate whether the respondents were accurately answering the questions or not. In conclusion, despite the drawbacks associated with the use of questionnaires, the survey is the best approach in consideration with the aims of this research. Prior studies with aims similar to the ones of the study reported in this thesis (e.g. Chen 2006; Chen 2004; Kim 2003) have used the survey technique and thus further warrant usage of this technique as a valid research strategy.

A self-administered questionnaire can be administered electronically over the internet (e.g. online surveys), or by posting to individuals to be returned by mail again (e.g. postal or mail questionnaires), or by delivering by hand to each respondent and collected later (e.g. delivery and collection questionnaires). In this study, the questionnaire is administered with the help of hoisting it online in a website. This is discussed in detail in the later sections of this chapter.

The next stage discusses the survey instrument development followed by the operationalization of the variables, pretesting, and finally administering the online survey instrument.

4.2 SURVEY INSTRUMENT DEVELOPMENT

> *A methodologist once described the question-writing task as similar to driving in freeway traffic while drinking a cup of hot coffee and answering an emergency call on his cell phone. Many things are competing for attention, and failure to heed any of them can spell disaster. It is the need to consider many competing things at once that makes it difficult to write questions for self-administered surveys. But unlike freeway*

> *driving while tending to coffee and telephone calls, which is not advisable, many things need to be considered when writing questions (Dillman 2007, p. 13).*

Studies in research methods (e.g. Bryman and Bell 2007) have found that a number of researches fail to meet their objectives as the survey question designed or prepared cannot fulfil its purpose. There are several reasons for this. Firstly, it may be the use of wrong words or use of an inappropriate structure of the questions making it unanswerable. Secondly, it may be that a complete copy of questions used in one survey may not be applicable in another study (Dillman 1978). Therefore, to overcome these problems, there are certain guidelines which aid in developing the instrument for the survey (Churchill 1979). First, the items for the questionnaire need to be adopted, which should contain a combination of pre-tested questions for the constructs from previous studies and those generated on proper analysis of the literature and the hypothesis generated. Second, a pretest should be conducted to check for any possible improvements and to finalize the survey questionnaire. Finally, the survey questionnaire should be applied to the selected sample. The data collected from the survey should be then screened and analyzed according to the recommended statistical methods.

In this study, firstly the preliminary measures for the variables for this study were derived from previous research. The preliminary questionnaire consists of measures for the items: trust, perceived risk, market orientation, perceived security and technological trustworthiness, perceived product information quality, user interface quality, web experience, importance of website reputation, relational benefit, social presence, and the demographic variables, such as age, gender, educational qualifications, annual household income, and annual online purchase. Operationalization of these variables and these measures are discussed in detail in the next section.

Secondly, a pilot study is conducted amongst students and staff in the Durham Business School (DBS). An online survey was developed which was distributed within the DBS e-mail server. A total of 54 responses were derived. Preliminary basic statistical analyses were conducted including tests of reliability to see whether the items measured what they meant to measure. Detail are provided in section 4.5 titled 'pretesting'.

Thirdly, after the survey a small group of respondents, knowledgeable colleagues, and analysts were invited to take part in a series of discussions to see and interpret whether the questions included in the survey were suitable for data collection. Based on their suggestions and on the results of the pilot study, changes in the questionnaire were made which are discussed later in the 'pretesting' in the section 4.5.

4.2.1 Use of Multiple Items for Measurement

Researchers recommend for applying multiple items for measuring variables in research using survey techniques. There are various reasons of using multiple items as explained below (Hair et al. 2006)—

(a) It enables to overcome to some extent the measurement error inherent in all measured variables. Measurement error is the degree to which the observed values are not representative of the actual values (Hair et. al. (2006). The effect of measurement error is to partially mask any relationships and make the estimation of the multivariate models more difficult.

(b) It ensures the ability to represent the multiple aspects of a concept in a single measure. In most social research, by employing more variables in a multivariate model, an attempt is

made to represent the many facets of a concept that is complex. By using multiple questions, parsimony in the number of variables in the multivariate model is achieved.

In this study, the multiple questions (or measurement items) were derived from previous researches. This has been illustrated in the next section 4.3. In order to ensure whether the multiple question items were applicable in the particular research setting, it was necessary to pre-test the questions through a pilot study and have a review by experts. Some refinements, modifications, and new items were derived from the pre-testing as indicated in section 4.6. These were subject to test of internal consistency and the Cronbach Alpha scores were acceptable (as displayed in table 4.16). Therefore, the measurement items were then put in a measurement model using structural equation modelling (SEM). The modification indices recommended deletion of some of the measurement items. This is explained in detail in section 5.4.2 (including 5.4.2.1 and 5.4.2.2). The model was tested for convergent validity, discriminant validity, and nomological validity as explained in section 5.4.2.4. Finally, the measurement items were put in the structural model using SEM, and the testing of the hypothesis was conducted. Please see sections 5.5 (including sub-section 5.5.1) and 5.6.

4.3 OPERATIONALIZATION OF THE VARIABLES

4.3.1 Trust

The definition of trust used in this study was derived from the study of Mayer et al. (1995) which states that "it is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al. 1995). One of the aspects of this definition is that the trustee will perform an action which is of particular importance to the trustor, and in order to do so the trustee must posses some

characteristics, viz. ability/competence, benevolence, integrity, and predictability (Choudhury and Tsinopoulos 2007; Gefen and Straub 2004, 2003; Bhattacharjee 2002; Mayer and Davis 1999).

In e-commerce, researchers depict that these dimensions, if present, provide a parsimonious dimension space for trust formation (Bhattacharjee 2002). To operationalize these dimensions, ability has been defined as the skills, competencies, and characteristics that make the online store/website capable of performing the action as required by the seller. Benevolence is the extent to which the trustee (online store) is believed to do good to the trustor (customer) other than involve in only running for profit (Mayer et al. 1995). To be benevolent, online stores need also to be open and receptive to customers. Next, integrity refers to conforming to a set of principles and rules by the trustee (online store) so that they display that they are fair and reasonable to the trustor (customer) in a transactional relationship (Mayer et al. 1995). Finally, predictability is a means of uncertainty reduction on part of the trustor (e-commerce website). It indicates how the past relates to the future behaviour. The items for measuring all these four dimensions are shown in tables 4.1, 4.2, 4.3, and 4.4. The tables also indicate the studies from which the items have been adapted. Thus, all these items are assumed to collectively measure trust in e-commerce.

Table 4.1 Items for Ability

TRUST 1: I believe that most commercial web sites have the necessary skills and ability to carry out the online transaction.	Corbitt et al. (2003)
TRUST 2: I believe that most commercial web sites have the necessary technology knowledge to carry out the online transaction.	Corbitt et al. (2003)
TRUST 3: The chance of having a technical failure in an online transaction is quite small.	Corbitt et al. (2003)

Table 4.2: Items for Integrity

TRUST 7: Most e-commerce websites that I shop in are fair in online transactions.	Bhattacharjee 2002; Cummings and Bromiley 1996
TRUST 8: Most websites that I shop in are fair in utilizing my private information.	New Measure

Table 4.3: Items for Benevolence

TRUST 9: Most e-commerce websites are open and receptive to customer needs.	Bhattacharjee 2002
TRUST 10: Most e-commerce websites keep their customers' best interest in mind during most transactions.	Bhattacharjee 2002; Cummings and Bromiley 1996

Table 4.4: Items for Predictability

TRUST 4: Customers can always predict performance of most e-commerce web sites from their past experience with the web sites.	Corbitt et al. (2003)
TRUST 5: Past and future behaviours are positively related on most e-commerce web sites.	Corbitt et al. (2003)
TRUST 6: I tend to relax when I am dealing with the e-commerce web sites that I have had a pleasant experience with.	Corbitt et al. (2003)

4.3.2 Risk

Perceived Risk has been operationalized as having five components. These include performance, financial, social, psychological, and time risk (Corbitt et al. 2003). *Performance risk* in e-commerce can be defined as the peril associated with not meeting the expectations

of the customer when a product or service is purchased online. *Financial risk* is any monetary loss incurred; *social risk* is more or less associated with the individual's image in the context of how his family, friends, peers, and relatives see him/her in the context of associating him/her in an online transaction; psychological risk may be inferred as the anxiety and mental pressure incurred or chances of occurrence when a transaction online may go or goes wrong. Finally, the *time risk* is actually the length of the lead time in having the product or service in the customers' disposal when the transaction has been competed online. The following table 4.5 shows the items for measuring risk as well as indicating the studies from which they have been adapted from.

Table 4.5: Items for Perceived Risk

RISK_1: Online purchases are risky as the products/services purchased are cheaper elsewhere.	Corbitt et al (2003)
RISK_2: I believe that online purchases are risky because the products / services delivered may fail to perception risk meet my expectations.	Corbitt et al (2003)
RISK_3: I believe that online purchases are risky because the products / services delivered may fail to fit well with my personal image or self-concept.	Corbitt et al. (2003)
RISK_4: I believe that online purchases are risky because it may cause others to think less highly of me.	Corbitt et al. (2003)
RISK_5: Online purchases are risky in terms of time because the products/services may fail to be delivered within the expected time frame.	Corbitt et al. (2003)

4.3.3 Market Orientation

Market orientation is operationalized as the process and activity concerned with creating and satisfying customers by continuously assessing their needs and wants (Uncles 2000). In order

to understand the needs and wants, e-commerce websites need to gather information about the customers (information generation). At the same time, e-commerce websites must create an image that the customer is important to them by communicating with them (information dissemination), and meet the needs and wants of the customers by dealing with their opinions with urgency and responsiveness (customer responsiveness). Tables 4.6 to 4.8 show the items to measure market orientation under the three components of market orientation, viz. information generation, information dissemination, and responsiveness.

Table 4.6: Items for Information generation

MKT_OR_1: The e-commerce web sites that I have visited are generally good at collecting customers' information.	Corbitt et al. (2003)
MKT_OR_2: Most e-commerce websites encourage customers to send their feedback on any issues.	Corbitt et al. (2003)

Table 4.7: Items for Information dissemination

MKT_OR_3: Customers' opinions can be reviewed and exchanged effectively through e-commerce web sites.	Corbitt et al. (2003)
MKT_OR_4: Customers' opinions can be easily lost in the communication chain.	Corbitt et al. (2003)

Table 4.8: Items for Responsiveness

MKT_OR_5: Customers' opinion can influence the way e-commerce web sites serve the customers.	Corbitt et al. (2003)
MKT_OR_6: Usually I receive a timely response from the e-commerce websites from which I purchase.	Corbitt et al. (2003)
MKT_OR_7: Usually any issues relating to online purchases can be solved effectively and satisfactorily once I have contacted the web sites with my problems.	Corbitt et al. (2003)

4.3.4 Perceived Security and Technological Trustworthiness

Perceived Security and Technological Trustworthiness has two components: security or privacy of the user and the technical capacity to conduct transactions safely and to the best interest of the customer. Security is concerned with privacy of the user and protection of personal information (e.g. credit card details) from falling to wrong hands. Moreover, it also includes the concern of the online vendor that the information and actions of the customers are not fraudulent. On the other hand, technological trustworthiness means capability to process large transactions in a secure and reliable way as well as to ensure privacy and security to the customers. The items for measuring Perceived Security and Technological Trustworthiness have been mostly derived from studies of Corbitt et al. (2003) and are shown in table 4.9.

Table 4.9: Items for Perceived Security and Technological Trustworthiness

PSTT 1: I believe that most e-commerce systems are capable of processing a large number of transactions, connections, or large orders efficiently.	Corbitt et al (2003)
PSTT 2: The technologies used by the e-commerce websites are secure and reliable.	Corbitt et al (2003)
PSTT 3: I have a feeling that no one can access the data of e-commerce websites without permission.	Corbitt et al. (2003)
PSTT 4: E-commerce technologies are effective in checking out whether a particular user is authorised to take a certain action.	Corbitt et al. (2003)
PSTT 5: Allowing customers to use a false name or no name at all can ensure the customers' personal record left on e-commerce web sites will not be used for finding out customers' real identity.	Corbitt et al (2003)
PSTT 7: Technology mechanism can effectively prevent a third party from stealing online customers' information.	New Measure
PSTT 8: I have a doubt that my information placed to the website may be used in an undue manner.	Corbitt et al (2003)

4.3.5 Social Presence

Social presence indicates that a new technology or a medium, that is e-commerce websites must have a sense of warmth, human touch, and to insert a psychological feeling of presence of a communicator. To measure social presence, the items were borrowed from Gefen and Starub's (2003) study and are shown in Table 4.10.

Table 4.10: Items for Social Presence

SPIR1: There is a sense of human contact and personal touch in the website that I shop online.	Gefen and Straub (2003)
SPIR2: There is a sense of sociability in the website from which I intend to purchase products and services.	Gefen and Straub (2003)
SPIR3: There is a sense of human sensitivity and warmth in the website from which I intend to purchase products and services.	Gefen and Straub (2003)

4.3.6 Importance on Websites' Reputation

This variable relates to the value or importance placed on a website's reputation before making a decision about purchasing online. Reputation takes the form of certain cues or signals (Ruyter et al. 2001). These signals help customers decide whether a particular organization is reputable and beneficial to the customers (Jarvenpaa et al. 2000). Additionally, reputation provides the knowledge which makes customers decide whether to shop from a website or not (Ruyter et al. 2001). Thus, the items included in measuring importance of website reputation are displayed in table 4.11.

Table 4.11: Items for Importance of Websites' Reputation

ORG_REP 1: I prefer to shop from well reputed online stores.	New Measure
ORG_REP2: A well known website posses less risk in e-commerce.	New Measure
OR_REP3: Lack of knowledge about particular websites discourages me to shop from them.	New Measure

4.3.7 Perceived Product and Service Information Quality

To operationalize Perceived Product and Service Information Quality, it is the information that should be up-to-date in presenting products and services sufficient to help consumers make a choice, consistent in representing and formatting the content, and easy to understand (Zhang *et al.* 2000; Wang and Strong 1996). Moreover, the information presented should be adequate and relevant in predicting the quality and utility of a product or service (Wolfinbarger and Gilly 2001). The items to measure Perceived Product Information Quality are shown in table 4.12.

Table 4.12: Items for Perceived Product and Service Information Quality

PPIQ1: E-commerce websites provide up-to-date information about products and services.	Park and Kim (2003)
PPIQ 2: Product and service information is easy to understand, consistent, and relevant.	Park and Kim (2003)
PPIQ 3: I am likely not to shop from a website where information on products and service that I intend to purchase is not adequate.	Park and Kim (2003)

4.3.8 User Interface Quality

User Interface Quality is operationalized as the system layout, navigation sequence, and convenience to search for a product or information, or simply to browse (Bharati and Chaudhury 2004 *in:* Lin 2007a; DeLone and McLean 2003; Szymanski and Hise 2000; Spiller and Lohse 1997). The items to measure User Interface Quality are shown in table 4.13.

Table 4.13: Items for User Interface Quality

UIQ 1: Most websites have appropriate features suitable for online shopping.	Ribbink et al. (2004)
UIQ 2: E-commerce websites from which I purchase are convenient for searching for products or services required by me.	Gefen and Straub (2000)
UIQ 3: E-commerce websites from which I purchase are easy to navigate wanted pages and easily downloadable.	Park and Kim (2003)

4.3.9 Relational Benefit

Relational benefit is the benefits that a customer accrues from engaging in a long-term relation with a person and is usually beyond the core service performance in an exchange relationship, such as e-commerce (Gwinner *et al.* 1998). The items to measure relational benefit have been derived from the studies of Park and Kim (2003). These are shown in table 4.14. The questions for the items are modified slightly but to carry the same structure and meaning of the items used by Park and Kim (2003).

Table 4.14: Items for Relational Benefit

REL-BEN 1: I am reduced considerable time and effort when purchasing online compared to shopping in traditional stores.	Park and Kim (2003)
REL-BEN 2: I purchase those items which are difficult or costly to purchase in traditional stores.	Park and Kim (2003)

4.3.10 Web Experience

Web experience is operationalized as the experience, knowledge, ideas, and all available cues that a user develops and gathers from online transactions. There has been no consensus about how web experience can be measured by the researchers; each researcher has measured web experience in different ways. For this research the items have been gathered from the study of Corbitt et al. (2003) and are shown in table 4.15.

Table 4.15: Items for Web Experience

yrs_per_wk: I have been using the Internet for: (less than 1 year/ between 1 and 2 years/ between 2 and 3 years/ between 3 and 5 years/5 years or more)	Corbitt et al. (2003)
hrs_per_week: I use the Internet approximately: (less than 1 h per week/ between 1 and 3 h per week/ between 3 and 10 h per week/between 10 and 20 h per week/ more than 20 h per week)	Corbitt et al. (2003)

4.3.11 Demographic Variables

Demographic variables include age, gender, educational qualifications, annual household income, and annual online purchase and they are measured using categorical format. They are operationalized as follows—

- Age: Less than 15/ Between 15-25/ Between 25-35/ Between 35-50/Above 51 (Nominal data)
- Nationality: Optional and chosen from the scroll menu (Nominal data).
- Gender: Male/Female (Nominal data).
- My highest level of educational qualification is: No formal education/ High school graduate / Diploma or Bachelor degree / Masters or Post Graduate degree / PhD or above (Nominal data).

- My monthly household income: Less than £1,000/ Between £1,000 and £3,500/ Between £3,500 and £5,000/ between £5,000 and £10,000/ Above £10,000 (Nominal data).
- What is the approximate amount of your online purchase? (less than £50/ between £50-100/ between £100-500/ between £50-2000/ above £2000) [Nominal data].

In the next sections, discussion continues on how to measure these items using the Likert Scales.

4.4 USE OF LIKERT SCALE TO MEASURE THE ITEMS

All the items to measure the variables in the study use Likert Scale except for the demographical variables and the variable, web experience. The Likert Scale has several advantages. Firstly, they are easy to construct and administer. Statements that represent the contents of a domain are prepared and then respondents are requested to scale their choice to the statement. They generally follow from an appealing model and possess high reliability (Nunnally 1978). This means that the statements that are developed demonstrate the ability to measure what they are intended to measure, which is scale reliability that is, the accuracy or precision of a measuring scale or instrument that yields consistent results (Peterson 1994). Finally, they can be adapted to measure different kinds of attitudes and have generated meaningful results in many previous research studies (Chen 2004). Hence, many existing studies relating to consumer trust in e-commerce have used Likert Scales (Chen and Barnes 2007; Chen 2007; Cyr et al. 2007; Chen 2006; Chen 2004; Gefen and Straub 2003, 2004; Gefen et al. 2003; Jarvenpaa et al. 2000; Corbitt et al. 2003), and therefore in line with these existing research as well as on the basis of the very nature of this research, this study also adopts using the Likert Scale for measuring the different variables.

Likert Scale is a common type of attitudinal rating scales used in most business research (Zikmund 2000, p. 291; Malhotra 1999). With a Likert Scale, respondents indicate their attitudes by checking how strongly they agree or disagree with carefully constructed statements relating to an attitudinal object. Individuals generally choose from five alternatives: strongly agree, agree, uncertain (neutral), disagree, and strongly disagree; but the alternatives may number from 3 to 9 (Likert 1932). For this study, a five-point scale is used. This is in line with other studies associated with trust and its factors in e-commerce (Corbit et al. 2003; Pavlou 2003; McKnight et al. 2002a; Jarvenpaa et al. 2000).

A disadvantage of the Likert Scale is that it is difficult to know what a single summated score means. Many patterns of response to the various statements can produce the same total score. Thus, identical total scores may reflect different attitudes because of the different combinations of statements endorsed (Zikmund 2000, p. 292). Summated scales are usually necessary for certain type of analysis such as multiple regression analysis. In this study, structural equation modelling (SEM) is used and therefore identical total scores are not a problem for this study. In the later part of this chapter, detail is provided on using SEM for data analysis.

Another limitation of using a Likert Scale is that there is difficulty in establishing the neutral point on the scale. The neutral point can be, not necessarily, the mid point of the scales used that is the mid-point between the extreme scores. However, this depends on the understanding of the topic and context studied (Karavas-Doukas 1996; Oppenheim 1992, 1966). Therefore, to overcome this difficulty and to make things simpler, in this research, the

middle number (3) of the five-point scale is considered the middle and neutral point in the scale.

Another point which is also considered a drawback of the Likert scale is that it prevents respondents from expressing their attitudes in their own words about what these statements and questions which are scored using a Likert scale (Romano et al. 2000). Moreover, in case of responding to a statement or question, the respondent may find little difference between the scales 'agree' and 'strongly agree' (Crespi 1965). People may have the same intensity of feeling and perception towards an item but view the semantic description of their feelings differently. To overcome these problems, the best way is to provide clarity in the statements to the questions so that respondents can understand the questions properly. This will also lead to provide proper responses by the respondents allowing them to distinguish their responses between the scales such as 'agree' and 'strongly agree'

Finally, the Likert Scale may be subject to respondent bias (Fowler 1993; Oppenheim 1992; Fox et al. 1988). Respondents may provide similar scorings to questions/statements. Moreover, there may be issues of low response rate, incomplete answers, and multiple entries creating confusion. In order to check for this drawback, the researcher looked minutely and examined each and every scores made by the respondent to the questionnaire. Similar scores were eventually deleted from the data collections made in this study. To enhance high response rate and to avoid incomplete answers and multiple entries, certain strategies in designing of the websites were undertaken by the researcher in this study as illustrated later in this chapter.

Despite these limitations, the Likert Scale is used as an appropriate measure for attitudinal issues in social research (Karavas-Doukas 1996; Malhotra 1999). It is easy to administer and to develop and can get responses in a faster rate. Therefore, a large number of responses can be obtained and most research concerning trust in e-commerce and factors affecting trust have used a Likert scale (Chen and Barnes 2007; Chen 2007; Cyr et al. 2007; Chen 2006; Chen 2004; Gefen and Straub 2003, 2004; Gefen et al. 2003; Corbitt et al. 2003; Jarvenpaa et al. 2000) as stated earlier.

One of the important things about administering this survey is deciding what kind of respondents to take part in the survey. This is discussed later in this chapter, but still to mention this study aims to have only respondents who are online consumers. Therefore, to ensure that online consumers *only* fill-in the questionnaire, a control was established in the beginning of this survey. The control was set just after questions relating to personal and demographic characteristics of the respondents in the questionnaire. These questions were fixed alternative questions. The fixed alternative questions provide specific limited alternative responses to questions, and ask the respondent to choose the one that is closest to his/her viewpoint (Zikmund 2000). Detail of how these questions serve as control are provided in page 90 where it is explained how the php scripts used in the online survey enable to receive and screen the responses based on these controls established by these fixed alternative questions.

Now, once the variables have been operationalized into items for the questionnaire and a scale has been determined for entering scores for the responses, the next step is to conduct a pre-testing of the questionnaire.

4.5 PRE-TESTING

In this section, the items operationalized in section 4.3 are pre-tested prior to putting them into the questionnaire for the actual survey. Pre-testing has different meanings to different people. Some people think it is an evaluation of procedures to send the questionnaire to a small sample of the respondent population and seeing whether any problems come up (Dillman 1978). Others think it is a process to detect any mistakes in printing of the questionnaires (Salant and Dillman 2004; Dillman 1978). Moreover, it is also thought that pre-testing is learning of whether people understand the questions (Dillman 2007). Hence, in this study pre-testing was done to ensure whether all such issues have been taken care off. The following are the procedures adopted for pretesting:

(a) Pilot Study: A pilot study is a collective term used to describe any small scale exploratory research technique that uses sampling, but does not apply rigorous standards (Zikmund 2000). A pilot study was conducted in this research to test whether the questionnaire is suitable for the main study.

A survey is developed based on the questions obtained from operationalization of the variables. A total of 45 questions were developed in the questionnaire apart from the questions covering the demographic variables and the control questions. A total of 100 questionnaires were distributed amongst staff and post graduate research students of the Durham Business School of UK. A total of 54 questionnaires were returned of which 1 respondent indicated that he/she had never purchased on the net. Hence, the response rate was 55 per cent. Small sample sizes are common in a pilot study and provide the basis for development of content, flow, and scope of the final survey (Awad and Ragowsky 2008)

The aim of using this pilot study is to emulate procedures proposed for the main study (Dillman 2007). Since most of the items were derived from previous studies, it indicated that to some extent that the constructs were well tested. But questionnaires applicable for one study or in one situation may not be applicable for another study or situation (Bruce 2004), and therefore to overcome this drawback, this pilot study is done to identify flaws or weaknesses in the overall questionnaire, and to see its applicability in the contextual setting of this research. Moreover, as the questionnaire has been developed based on items from previous studies, basic statistics like test of reliability, is sufficient to ensure reliability and internal consistency of the measures (Corbitt et al. 2003; Kim 2003).

The results of the analysis for reliability of the items are shown in table 4.16.

Table 4.16: Tests of Reliability of the Variables in the Pilot Study

Variable	Cronbach Alpha
Trust	0.74
Risk	0.60
Market Orientation	0.51
Perceived Security and Technological Trustworthiness	0.73
User Interface Quality	0.83
Perceived Product Information Quality	0.50
Relational Benefit	0.52
Importance of Websites' Reputation	0.58
Social Presence	0.71

(b) Review by knowledgeable colleagues and analysts: As per table 4.16, the Cronbach Alpha scores for the items were above the threshold limit of 0.5 as recommended by Fornell and Larcker (1981 *in:* Awad and Ragowsky 2008, p. 109). Therefore, as the next step, the researcher meets with a group of colleagues and analysts to have a complete comparison of theory with the questions with a view to check whether all necessary questions are included relating to operationalization of the variables. Moreover, some of the questions are eliminated and reworded for clarity and understanding for the respondents as well as in line with the reliability tests and the results of the corrected item-total correlations. Finally the questions are ordered in such a way so that the survey provides clear depiction and easy communication of what is intended from the words of the questions. It may be also mentioned that prior to conducting the pilot study, the researcher had a discussion with the knowledgeable colleagues and analysts to see whether the questions are plausible and ready for the pilot study.

© Final Check: At this stage, the questionnaire is again reviewed thoroughly, and checks and corrections are made to the grammar and language of the questions of the questionnaire. Additionally, there is a check of spellings and wordings, and a proper scan of the whole questionnaire to see whether the questions are correctly numbered and ordered so that the respondents have a feeling of maintenance of sequence in responding. When questionnaires are drafted using computers and machines, in most cases, some errors may remain unseen and therefore, to trace them out, the document is printed and checked minutely.

A thing to note about pre-testing is that since the questions for this research have been borrowed from other studies, to a certain extent, the items in the questionnaire have been

tested by the previous authors. Moreover, these previous researchers (Chen 2006; Chen 2004; Gefen and Straub 2004; Ribbink et al. 2004; Kim 2003) have also followed similar procedures like what has been adopted in this study, that is they also borrowed the measures for their items from other previous studies. So to a great extent the measures are well tested and do not need thorough analysis as have been done by some researchers (like Chen 2007; McCole 2001). These researchers (Chen 2007; McCole 2001) developed their questions for the survey from scratch and therefore required thorough statistical analysis techniques in the pilot study.

4.6 CHANGES TO THE QUESTIONNAIRE BASED ON THE FINDINGS FROM THE PRE-TESTING

The pre-testing led to several changes in the questions involving rewording, rephrasing, re-ordering, and omission of some of the questions. First of all, the rewording and rephrasing were done to ensure clarity and simplicity in the questions as well as change the tone of the questioning. Next (as in sub-section 4.6.2) explanation is provided on the ordering of the questions.

4.6.1 Rewording and Rephrasing of the Questions

The following explains in brief the changes that have been undertaken based on the results of the pre-testing. The final questionnaire is presented in appendix A after these changes have been incorporated.

Demographic Variable: Age

The first change was with age bracket, i.e. the range of age. The researcher had to introduce new scales. The age brackets derived from the study of Corbitt et al. (2003) deemed to be not realistic as they used student populations. Therefore to obtain respondents from all segments of the population, a new age bracket was designed[9] (detail are shown in the final questionnaire in the appendix A).

Questions on Web Experience

The questions about customer's web experience using the category scales were introduced within the control items. This is done for ensuring continuity in the arrangement of the questionnaire (as per Dillman 2007).

Items for Trust

TRUST8 (as in table 4.2) was dropped based on the results of the test of reliability, where it indicated that on dropping the item the reliability scores increased. The dropping of the item TRUST8 was also recommended by the experts and analysts based on comparison of the literature with the questions for trust.

Items for Market Orientation

In case of market orientation, the questions needed minor changes in terms of rephrasing and inclusions of examples for clarifications (please see appendix A).

[9] Source: http://www.demographicsnowuk.com/AllocateOnline.srct?ShowPage=static/samples/IncomeRank.htm

Items for Perceived Risk

Based on the suggestions of the experts, the wordings of the questions for all the items to measure Perceived Risk were re-phrased. Since the questions were borrowed from the study of Corbitt et al. (2003), the necessary changes were made for adapting to this present research setting. These are clearly depicted in appendix A.

Items for Perceived Security and Technological Trustworthiness

Here, the item SEC_TRST2 had to be dropped based on suggestions from experts that the question did not relate to the existing literature. Here, some of the questions had to be re-ordered for maintaining sequence in questioning and slight changes were made in phrasing the sentences (please see appendix A).

Items for Relational Benefit

The two questions had to be rephrased and replaced by a total of four (4) questions clarity.

Items for User Interface Quality and Perceived Product and Information Quality

In case of User Interface Quality and Perceived Product and Information Quality, some of the questions needed rephrasing to make the meaning clear and understandable. The question PPIQ2 had to be broken down as per Kim and Park (2003) for convenience and clarity. A new question was also added based on review of the literature (please see appendix A).

In conclusion, the items in the questionnaire needed some corrections and deletions. Most of the variables had a Cronbach Alpha ranging from 0.55-0.90. Statisticians and researchers mention that values of 0.50 are okay in case of social research (Awad and Ragowsky 2008;

Pallant 2007; Field 2005). Therefore, for the pilot study the Cronbach Alpha scores are within limits and acceptable.

In the next section, description is provided about how the items in the questionnaire are arranged and ordered to ensure high response rate and clarity for the respondents. This is followed by the section which explains the design and development of the online survey. A thing to note is that when the final questionnaire was developed (as in appendix A), the recognition tags/coding or labels for the item (viz. TRUST1, 2, 3....., RISK_1,_2,_3, etc.) were recoded in the manner for convenience of the researcher especially to improve clarity and facilitate the analysis. From this point onwards (including all the other appendices), all the items cited refer to the codes for the measurement items as indicted in appendix A.

4.6.2 Ordering of the Questions

Ordering of the questions is a critical task in designing a questionnaire. The ordering enables clear understanding to respondents and improves interest in taking part in the survey. Dillman (2007) states that—

> *"Constantly switching topics makes it appear that the questioner (survey sponsor) is not listening to the respondent's answers. Each answer seems to stimulate a response on an unrelated topic, as though the person's answer was not heard. Jumping quickly between topics also means that answers are less likely to be well thought out, as new topics evoke top-of-the-head responses.....Grouping questions by topic according to the principles that follow is helpful to respondents."*

Initially, in this study the questions related to a topic were grouped in a general way from most salient to least salient. This arrangement is adapted based on the finding that a

major predictor of response rates to mail surveys is the salience of the questionnaire topic (Heberlein and Baumgartner 1978).

Moreover, the questions in the questionnaire are ordered in such a way that seem logical to the respondent, which means asking questions about things in the order of the way they happened. It is also helpful to group together questions that have similar component parts. This reduces the cognitive burden of responding, that is respondents will not face the problem of thinking when shifting from one question to another as well as facing a new response category; hence, requiring less effort on part of the respondents (Dillman 2007).

Dillman (2007) further suggests that objectionable questions need to be placed near the end of the questionnaire, where they are likely to be seen after the respondent has had an opportunity in being interested in the questionnaire. In this study, care has been taken to ensure that there are no objectionable questions in the survey. However, questions to capture the demographic variables of the respondents have been put in the beginning of the questionnaire (which is in line with the study of Jarvenpaa et al. 2000). Moreover, the questions to control participation of e-commerce customers in the survey were put in beginning section of the survey too.

4.7 THE ONLINE SURVEY INSTRUMENT

Apart from arranging and ordering the questions in the questionnaire, the most important task is to administer the questionnaire online. As stated earlier, an online questionnaire is used based on the idea that the study will aim to reach customers who have had purchased from the internet, that is an e-commerce website. A number of researchers have used an

online survey (Chen 2004; Corbitt et al. 2003; Park and Kim 2003; Kim 2003; Pavlou and Chai 2002) because they are less costly and easy to administer by sending invitations through e-mails.

An online survey benefits form automatic data transmission from the web to the database without bothering about data entry and check (Bryman 2004). Moreover, studies have shown that people find fun in filling online questionnaires and such exercises are presumably more likely to attract more respondents (Saunders et al. 2007). Other studies (e.g. Chen 2004) found that young people are attracted to computers and are likely to provide truthful answers when using online surveys.

However, an online survey suffers some drawbacks. They may fall prey to hackers and the data gathered may be lost to unwanted third parties. Moreover, some respondents may play pranks by providing similar scores to the questions in the survey, or may make multiple entries to the scores entered by participating several times in the survey.

Despite these drawbacks, an online survey is a convenient means of collecting data via the web. And in order to make the data collection process effective, there are some issues, in terms of hoisting, layout, design, and database used for storing data. These need to be dealt carefully which are elaborated in the next sub-sections.

4.7.1 Use of Specific Domain Address

In this study, the domain name, *http://www.ecommercesurvey.net*, was used to create an impression at first sight to the users that the website was meant to carry on an online survey concerning electronic commerce. The domain was purchased from

www.networksolutions.com, the US based domain provider. It was designed and hoisted in a local server in Bangladesh. This saved considerable money in designing and hoisting the website, and enabled the researcher to have a watch on the server via the control panel.

There are certain advantages of using a unique domain name. It builds confidence in the users to feel encouraged to visit these websites when e-mail invitations are sent to them to participate in the survey. Due to increasing trends in phishing[10] and threats from malicious programs spread through click of a button on a hyperlink in unsolicited mails, there is a fear amongst users not to visit websites sent to them through e-mails from unknown people.

Using a unique domain also provides an advantage for reaching users of certain e-mail providers such as Yahoo!®, Hotmail©, etc. Such e-mail providers offer filters so that e-mails with web links sent to the users end up in bulk folders or junk folders, which are seldom opened by the users. Thus, having a unique domain address and using the Durham University e-mail address to send invitations to take part in the survey, usually prevents to be caught by these filters of these e-mail providers and hence make the invitations reach the respondents. However, the chance of ending in a bulk folder completely depends on how much control the e-mail user has established in his mail box.

4.7.2 Use of PhP and Java Programming

In this study, the web pages for the online survey were developed using PHP script with java programming language. It has a total of four pages: a welcome page inviting the user to take part in the survey and explaining what the research is about and what is intended from him/her; the second page consists of questions for the demographic variables followed by the

[10] See Appendix E.

control variables. This page is then linked to the third page which consists of the 46 questions which measure the variables of this survey. There is a final page which appears on completion of the survey thanking the respondent for his/her cooperation and participation in the survey.

The PHP scripts provide a number of advantages to the researcher. It screens to include respondents who have purchased from the internet to move from the second page to the third page of the survey which contains the next 46 questions. The second page consists of some screening questions. The first question relates to whether the respondent has used the internet. If so, the respondent is required to provide the number of hours of weekly usage. This is followed by asking whether the respondent has purchased from the internet. If so, then the respondent is asked to choose the amount of purchase that he/she has made in the last one year. If these questions are answered positively, they are then enabled to proceed on to the third page. If the users specify that they have never purchased online, the php scripts programming prohibit the user to proceed to the third page.

The PHP scripts also prevent non-response errors by ensuring that all questions to the survey are answered by popping up or showing error messages if the respondent misses to fill-in one or more questions. Not only this, there is an error message displayed pointing out which questions need to be filled-in. Hence, the questionnaire cannot be submitted if all questions are not completed. This is an advantage over paper based questionnaires and chances of accuracy are more enhanced.

Another advantage of using the PHP script is that it restricts multiple entries to any questions and ensures that a single choice for an answer is obtained for each question. Moreover, users

are prevented from making multiple entries to the survey. Researchers (like Chen 2004) have pointed out that web surveys suffer from such multiple entries making the collected data biased and questionable. However, in this research each respondent is asked to enter his/her e-mail address and the php scripts keep record of their e-mail addresses. Now, if respondents, who have entered their responses once and then attempt to make further entries to the survey, the programming in the website catches this and keeps a record of this activity without informing the respondents that their multiple entries or multiple participations in the survey have been taken note of. Hence, this prevents the biasness that may result from collecting responses only from a single user. However, it is observed that in online surveys if e-mail addresses are asked to respondents, the respondents feel reluctant to taking part in the survey. Therefore, to overcome this situation, the e-mail invitations clarify to the respondents why their e-mail addresses are requested, and at the same time provide the assurance to the respondents that their information will not be used in any manner detrimental to their interests.

4.7.3 Ease of Access

Sometimes surveys are designed with such a level of technical sophistication making it difficult for some web users to receive and respond to them (Dillman 2007, p. 354). Moreover, certain ways of designing questions may result in the items being seen in one way by a respondent with a particular type of computer operating system and screen configuration which appear significantly differently to another respondent, who is using a different operating system and screen configuration. Web designers using third generation website development tools have been capable of dealing with these issues and therefore, in this research, the layout of the screen has been made in such a manner so that it may fit into any

screen resolutions, such as the three display resolution configurations— 640x480, 800x600, and 1024x768.

Moreover, to accommodate users with low connectivity, the size of the website pages in HTML format were made as minimum as possible so that they can easily load in any type of internet connections. Images, figures, and flash-oriented scripts were avoided to ensure easy loading of the pages. However, colours were used as shading so that questions can be easily read and made distinguishable from each other via the contrast created.

4.7.4 Layout of the pages

The layout of the whole questionnaire was made in such a manner so that it does not look in anyway unconventional to the respondent. Fonts were made to standard and a scroll bar was available so that the respondent could scroll up and down the questions to see his/her responses. Radio buttons were used to indicate single answers to questions as for the Likert Scales and fixed alternative questions. A drop-down menu was used for choosing the nationality of the respondent consisting of the list of all the countries in the world. No specific instructions about specific computer actions needed to fill-in the questionnaire were provided in the survey. The visual presentation of the website clearly indicated how and where to make an entry for a response to a question.

The questions for the control variables were in one page linking it to the second page consisting of the 47 items measuring the variables for the study. The rationale behind having all the 47 items in one page is to enable the user to have an idea of how many questions he/she need to fill-in. As mentioned earlier that this questionnaire uses scrolling and thereby, this method closely resembles the general experience of using the web (Dillman 2007, p.

395). Some surveys use a progress bar to indicate how far one has responded and move from page (screen) to page (screen) for each question being completed. This was not done in this case as this may not be suitable for users with low internet connectivity and may be more time consuming. Most importantly, it may create errors in transferring the responses to the database as it uses more computer resources whereas the scrolling technique requires less contact with the server. Dillman (2007, p. 396) further mentions observations of respondents answering questions that appeared one at a time on screens suggested that some respondents lose a sense of context. If their concentration is disrupted momentarily, they cannot go back and easily pick up on where they were in the mental process of responding. Since the issue of this order effect is critical for responding to the questionnaire, therefore, the use of a single screen with scrolling is suitable. Studies have showed that the order effects do produce equivocal results as in case of mail and telephone questionnaires (Dillman et al. 1996).

Additionally, in the questionnaire, pop-up windows and floating windows were avoided since some browser (e.g. IE7, mozilla, AOL) restrict pop up windows. This is sometimes considered as an annoyance and also a threat to the users' computers because most pop-ups are directed to collect information of the users' computers.

4.7.5 Other Advantages of Using an Online Survey

Another advantage associated with using online surveys is lower costs (as discussed earlier). The only high cost here is the cost of startup which includes designing and hoisting of the website and purchase of equipment, if necessary (McCullough 1998).

The online survey also minimizes the chance of interview errors (Chen 2004). Since the respondent uses the website to make his/her entries for the responses to the questionnaire, an

interviewer is not necessary to keep in contact with the respondent (Schillewaert et al. 1998). However, absence of an interviewer may also create disadvantages. If respondents cannot clarify any questions, they might fill it out without understanding and with confusion (Zikmund 2000). Therefore, in this study the questions are made simpler and understandable as much as possible.

In addition to having a well refined appearance, online surveys from survey capabilities are far beyond any other type of self administered questionnaire (Dillman 2007, p. 354). They can be designed so as to provide a more dynamic interaction between respondent and questionnaire than can be achieved in e-mail or paper surveys (Dillman 2007, p. 354). With its accessibility widened, the website can generate higher number of responses (Kehoe and Pitkow 1996). Thus, the chances of low responses to the survey (Chen 2004) are limited with the growing increase of the internet[11].

4.8 POPULATION AND DETERMINATION OF SAMPLING TECHNIQUE

As stated earlier, this research aims to identify the factors that affect trust in e-commerce. Therefore, the population of this study consists of individuals who have purchased from the internet. According to available statistics, the number of people who have purchased from the internet in the year 2008 is around 875 million. This is amounting to 40 per cent increase over the last 2 years[12].

Since the population for this study is very large, it is not possible to enumerate the whole population. Therefore, it is essential to derive a sample, i.e. a segment of the population that

[11] It is estimated that internet usage in the year 2008 was 1,463 million, which is 21.9% of the world's total population [Source: Internet World Stats (IWS), 2009].
[12] Source: http://www.nielsen.com/media/2008/pr_080128b.html [Accessed: 15th September 2008]

is selected by the researcher for investigation (Bryman 2004, p. 87). A sample is suitable as it enables to generalize or make inferences about the population of interest (Czaja and Blair 2005), while it helps to save money and time.

Sampling can be of two types: probability sampling and non-probability sampling. A probability sampling technique involves gathering a sample where the probability or chance of each case being selected from the population is known and is usually equal for all cases. On the other hand, in a non-probability sampling, the probability for each case being selected from the total population is not known and some cases have more chances of being selected than others (Schonlau et al. 2002).

From an analytical point of view, the sampling technique to be used in a study must satisfy three basic criteria (Ferber 1977). Firstly, the sample or the target population must be relevant to the topic under study. In this study, the nature of the research implies to include respondents who are online shoppers/customers. Second, the sample size must be adequate for analytical purposes. This is discussed in detail in section 4.9. Finally, the respondents of the study should be representative of the population under consideration. In case of a probability sample, the technique enables every individual in the population to have a known probability of being selected in the sample; hence, representativeness to a great extent is ensured (Saunders et al. 2007). However, for a non-probability sample, the determination of representativeness is much more subjective. In the next section 4.8.1, illustration is provided on how to determine representativeness from a non-probability sample.

In this study a non-probability convenience sampling technique is being used. The reason for using a convenience sample is that it is impossible to obtain a complete list of all the online

customers of the world (e.g. most e-commerce stores will not reveal the personal details of their customers to third parties due to restrictions in personal privacy laws). A convenience sample is a compromise to a random sample. To address the issues associated with use of a convenience sample, several actions were taken, which are explained in the following section.

4.8.1 Convenience Sample: Limitations and its Impact on Findings

Previous literature on sampling states that non-probability sampling techniques, like convenience sampling, will lack in representativeness of the entire population (Saunders et al. 2007; Bryman 2004; Zikmund 2000). This section explains the actions taken (achieving a large sample size and using diversified databases) to limit the impact of the use of convenience sample. Also to confirm that the profile of the resulting convenience sample is similar to that of the population, the section also provides a comparison of the sample's and population's descriptive statistics.

Schonlau et al. (2002) argue that when the size of the convenience sample is similarly large to a probability sample and when the research involves large populations, the chances of bias associated with non-representativeness are reduced. The size of the sample will depend on the analytical techniques applied in a study (Czaja and Blair 2005). In this study (as explained in section 4.9 of the thesis) the sample size is large for analytical purposes, and hence will overcome the bias associated with non-representativeness (Schonlau et al. 2002). Secondly, in this study (as explained later in section 4.10), the e-mail addresses of prospective respondents were derived from different publicly accessible databases. When data is collected from different databases, the chances of bias associated with using convenience sampling are

reduced considerably (Sousa et al. 2004). This is because the chances of inclusion of different types of respondents are increased and hence, more variability is achieved in the data.

Finally, to determine whether the convenience sample is representative of the population, it is necessary to compare the descriptive statistics of the convenience sample to the population (Sousa et al. 2004). To the best of the researcher's knowledge, no complete data is available that includes the characteristics of all the population of all online consumers worldwide. However, there have been some census surveys which cover most of the countries of the world[13] and hence, provide some information on the online customer population. Comparison of descriptive statistics in terms of percentages is conducted as shown in table 4.17

Table 4.17: Comparison of Descriptive Statistics of Sample and Population

		Sample (%)		Population (%)*	
Gender	Male		51.2		49
	Female		48.8		51
Age		16 - 25 yrs.	37.6	18-29	26
		26 - 35 yrs.	30.9	30-49	46
		36 - 50 yrs.	23.9	50-64	23
		51+ yrs.	7.7	65+	6
Education		No formal education	0.1	Less Than High School	6
		High school graduate	13.5	High School	29
		Diploma/Bachelor degree	22.6	Some College	25
		Masters/Post Graduate degree	51.1	College and above	39
		PhD or above	11.8		
Income		≤ £4,999	14.4		
		£5,000 - £9,999	8.0	Don't Know/Refused to Answer	17
		£10,000 - £14,999	11.4	Less than £12500**	13

[13] See www.pewinternet.org [Accessed 15th October 2008].

	£15,000 - £19,999	11.8	£12500-£20,000	12
	£20,000 +	54.5	£20,000 +	58

* Data Obtained from Pew Internet Research [Accessed: 21 January 2009].
**Converted to UK Pound Sterling from US Dollars (based on currency exchange rate on Dec. 2008-Jan. 2009)

Only data relating to gender, age, education, and income is obtainable for the population. In terms of gender, it appears that there is no apparent difference in proportion of male and female online customers in the census and sample data. In case of age, young and middle-aged respondents account to most of the online shoppers in case of both the sample and the data from the census survey. Educated customers are common in case of both the sample and census data. Lastly, the income of the respondents amounting to above £20,000 annually is around 54 per cent in case of the sample. This is quite similar to the percentage available from the census survey. In conclusion, no major differences emerge when comparing the demographic characteristics, and therefore it can be inferred that the respondents in the sample are representative to the population.

4.9 DETERMINING THE SAMPLE SIZE FOR THE STUDY

Once the sampling technique is determined, the next step involves determining the size of the sample. A sample usually consists of cases or elements drawn from the population through some selected procedures (Czaja and Blair 2005). Deciding on a suitable sample size is of crucial importance as it affects the type of analysis undertaken for analysis of the data. Moreover, it also reflects the how the data collected from the respondents will represent the entire population. The size of the sample also depends on how large is the size of the population. Some researchers point that it is also worth considering the sample size used in other studies (Chen 2004). Most importantly is the completion rate, that is, the number of

eligible responses obtainable within the limitations of resources in terms of money, time, and personal ability.

Sample size also depends on two considerations: qualitative and quantitative (Malhotra 1999). Qualitative considerations include the importance of a decision. More information and precision is needed for important decisions. In case of quantitative considerations, the absolute precision desired in the study, the specified level of statistical significance (or significance level) required, the number of variables used in the study, and statistical techniques used in the analysis, affect the decision of the sample size (Chen 2004). Hence, a large sample is required to achieve a high level of precision, to obtain a high significance level (that is, the odds that the observed results are not due to chance), to reduce the cumulative effects of sampling error across variables, and to apply sophisticated multivariate data analysis techniques.

Having understood all these criteria and having the size of population to be large, now the critical question in hand is determining what will be the sample size. To determine the size of the sample, the issue of time and costs involved in the collection of data is also a critical factor as stated earlier. Usually, there is no simple answer to the question what is the sample size? Sample size is a function of a number things— the research design being used; the variability of the key variable(s), if the population value is being estimated; and if the hypotheses is being tested, the size of the differences between two variables and the standard error of their differences. To determine the sample size, n, an approximate is obtained by an equation provided by Thompson (2002), which is as follows—

$$n = \frac{1}{\frac{d^2}{z^2 \delta^2} + \frac{1}{N}} \quad \text{»} \quad n = (1 - \frac{n}{N}) \frac{z^2 \delta^2}{d^2}$$

where,

N is the size of the eligible population

d^2 is the confidence level which refers to the margin of error that is tolerated.

The only way to avoid sampling error is by including all the members of the eligible population (i.e. n=N). But this is not possible and therefore, the margin of error to be tolerated has to be defined. As argued by Czaja and Blair (2005) this value has to be set by the researcher. A reasonable confidence interval is 0.1 (Czaja and Blair 2005). This means that margin of tolerable error is ± 10% .

Therefore, $d = 0.1$

$(1 - \frac{n}{N})$ is the finite population correction (fpc), which is an adjustment factor that becomes part of the formula when sample elements are selected without replacement. However, the fpc has very little effect on the end result when the size of the sample is less than 5% of the total population. In most sample surveys, this is the case, and the fpc is excluded (Czaja and Blair 2005).

Z^2 is the square value of the standard deviation score that refers to the area under a normal distribution of variables. The value of z is set by the researcher and expresses the probability level of the sample results, that is, in how many repeated samples of 100 that total the same size as the sample n, the population value is likely to fall within the specified confidence interval, d. One standard deviation includes about 68% of the sample value and its score is 1.0, two standard deviations include about 95% of the

sample values and its score is 1.96, and three standard deviations include about 99% of the sampled values and its score is 2.58 (Czaja and Blair 2005).

δ^2 *is* the approximation of the population variance, the square of the standard deviation of the population. In most cases, it is not possible to have the population variance and therefore, researchers have to rely on previous studies (Czaja and Blair 2005; Tsinopolous 2003; Thompson 2002). On review of existing literature, very few studies have reported the population variance in their study. One of the studies of Pavlou (2003) show that the standard deviation for the trust factor is 1.32. Pavlou's (2003) study used a large sample size and respondents were obtained randomly. Alternatively, in another study by Lee and Turban (2001), a value for standard deviation for trust in internet shopping was provided but the study suffered from use of student samples and around 95 per cent of the users had no prior experience of shopping online. Moreover, their (Lee and Turban 2001) study was conducted in an experimental setting asking respondents to assume that they had purchased from some pre-selected websites, and on the basis of which their perceptions were derived. Therefore, for this research, the value as stated by Pavlou (2003) was used.

Czaja and Blair (2005) notes that, there are few aspects of this formula that should be considered in selecting it—

(a) The formula is based on selection of elements by simple random sampling. However, in reality, few samples are derived using random sampling technique and therefore, this formula is only a guide to sample size requirements.

(b) Second, the formula applies only to a variable in percentage form. Metric variables such as income require the more traditional method of calculating a variance.

(c) Third, the formula gives a sample size solution for only one variable. Most surveys have many important variables. The fact that each variable in a survey has its own variance and, thus, that each can require different sample sizes forces researchers to make tough decisions. Typically, a compromise is fashioned between sample size requirements and the resources available (Tsinopolous 2003).

(d) A fourth assumption of the formula is that the sample comes from a large population or that the sample is a small proportion of the population. When this occurs, the fpc is ignored. The only time the population size is important is when the sample represents more than 5% of the population (Cochran 1977).

Based on the above data and arguments as placed, computation of the equation with the required values reveals the following:

$$n = \frac{\chi^2 \delta^2}{d^2} = \frac{1.96^2 \times 1.32^2}{(0.1)^2} = 669$$

Hence, the sample size for this study is determined to be a minimum of 669. Previous studies had varying sample sizes. For instance, Corbitt et al.'s (2003) study had only 80 respondents; Gefen and Straub (2003) had 250 respondents from a university; and Park and Kim (2003) had 771 respondents derived from Korean companies. Similarly, in McKnight et al.'s (2002a) study, 1403 usable responses were derived out of a final sample of 1,729; Chen's (2007) study had 937 respondents. Thus, based on all this discussion, it appears that the sample size of 699 is relatively suitable for this survey.

However, it is also necessary to understand whether the sample size determined is actually suitable for the necessary multivariate data analysis adopted in this study or not. In the later

sections of this chapter, such data analysis techniques are discussed in detail. Based on the proposed multivariate data analysis techniques, the following section discusses whether the sample size determined is actually suitable or not:

Sample Size for Factor Analysis

As stated later, the multivariate data analysis technique that will be adopted in this study will involve exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). Therefore it is necessary to discuss what sample size is required for factor analysis followed by discussion on sample size requirements for SEM.

In social science, a researcher will not generally factor analyze a sample if there are less than 50 observations (Hair et al. 1998). Preferably, a sample size greater than 100 or even larger will be acceptable. As a general rule, the minimum is to have at least five times as many observations as the number of variables to be analyzed, and the more acceptable sample size would have a 10:1 ratio. Some researchers even propose a minimum of 20 cases for each variable (Hair et al. 2006).

Sample Size for Structural Equation Modeling (SEM):

In case of using Structural Equation Modeling (SEM) for data analysis, Hair et al. (2006) suggests the following for choosing the sample size based on the model complexity and basic measurement model characteristics—

- SEM models containing five or fewer constructs, each with more than three items (observed variables), and with high item communalities (0.6 or higher), can be adequately estimated with samples as small as 100-150.

- If any communalities are modest (0.45 - 0.55), or the model contains constructs with fewer than three items, then the required sample size is more on the order of 200.
- If the communalities are lower or the model includes multiple underidentified (fewer than 3 items) constructs, then minimum sample sizes of 300 or more are needed to recover population parameters.
- When the number of factors is larger than six, some of which use fewer than three measured items as indicators, and multiple low communalities are present, sample size requirements may exceed 500.

In this study, a total of 10 constructs are being used. Based on all these discussion, a sample size of 699 is suitable for this study. Schumacker and Lomax (2004) also recommended a sample size greater than 500 when SEM is being used. Hence, the sample size of 699 is suitable for both exploratory factor analysis and SEM.

4.10 DATA COLLECTIONS PROCEDURE

As stated earlier, an online survey will be used to collect data and therefore, the best approach to reach potential respondents online is via an e-mail. An e-mail address is provided by an online customer when he/she conducts online transactions. The e-mail address serves as the means of communicating to the customer that the transaction has been authorized or completed by the e-vendor as well as enables future communications between the buyer and the seller.

As stated earlier, it is not possible to get a list of all the e-mail addresses of the customers from the population. Moreover, the e-mail addresses may be restricted by the online stores due to data protection and other privacy laws (as stated earlier). Alternatively, use of e-mail extractor softwares is not appropriate as it may lead to violation of privacy and hacking issues. Therefore, to collect data in this study, e-mail addresses were obtained from different publicly accessible databases. A total of 6,729 e-mail addresses were derived randomly from these databases.

Now, e-mail invitations were sent to all these 6,729 e-mail addresses to take part in the survey. If the respondents did not fill-in the survey in a week, another reminder was sent to them again in a week. All the respondents were not sent the e-mail invitations at once. They were sent in different intervals as it required some time to gather all the e-mail addresses from the databases. A total of $3^1/_2$ to 4 months were needed to collect the data and process it. A total of 789 responses were achieved, of which 72 respondents never used the internet to purchase any thing online. 14 responses were deleted as the respondents provided similar scores to the items in the Likert Scale indicating that they were not significantly involved in the survey. Therefore, a total of 703 usable responses were obtained.

4.11 DATA PROCESSING

The data collected through the online survey is stored in the server and then transferred to the MySQL database. The database makes the data suitable to be copied to the SPSS software package. The variables are then given the sub-titles for clear understanding to show which items reflect what data.

4.11.1 Descriptive Statistics

The data obtained will be first processed and presented in the form of histograms and frequency tables for all the items in the questionnaire. This is done to show the mean, median, mode, central tendency, kurtosis and skewness values. In addition, it also helps to have a visual understanding of how the data is distributed and whether there are any extreme cases.

Moreover, some preliminary tests will be done to ensure that the data is suitable for the multivariate data analysis in the next stage of the research. The preliminary tests commonly used are test of normality of distribution, detection of outliers, test of homogeneity of variance, and linearity of the variables (Pallant 2007; Field 2005). The *test of normality* refers to the shape of the data distribution for an individual variable and its correspondence to a normal distribution. It is represented in the form of a curve which is a symmetrical, bell shaped distribution that describes the expected probability of distribution of many chance occurrences (Zikmund 2000, p. 376). There are various ways of checking the normality of a distribution. One of them is checking the values of the skewness and kurtosis as per the guidelines of Bowley (1948), Kline (1998), and Curran et al. (1996).

On the other hand, the *outliers* are observations with a unique combination of characteristics identifiable as distinctly different from the other observations (Hair et al. 1998, p. 64). To check the outliers, it is necessary to visually inspect the histograms of each of the items to measure the variables (Pallant 2007).

A common measure for *test of homogeneity of variance* is the Levene's test. If Levene's test is significant for any variable (i.e., $p \leq .05$) at significance level of 95%, it is to conclude that

the null hypothesis has been rejected and there are significant differences in the variances amongst the groups (Field, 2005, p. 99). Now, if Levene's test is not significant ($p>.05$), it is accepted there is no difference in the variance in the variables amongst the two groups— the variance is roughly equal and the assumption is tenable.

Lastly, the association of *linearity* among the variables is ensured by exploring the Pearson's Correlation Coefficient Matrix (Zikmund 2000).

4.11.2 Tests of Validity

Once the preliminary tests have been conducted and the data proves to be suitable for further analysis, the next step involves using a multivariate data analysis technique to analyze the data and test the hypothesis. But prior to conducting the multivariate data analysis, it is necessary to check the validity of the measures. *Validity* refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure (Howell et al. 2005). Here, the study will analyze content validity, convergent validity, discriminant validity, and nomological validity. *Content validity*, also called face validity, has to do with items seeming to measure what they claim to be[14] [Garson (n.d.)]. Since the questions in the online questionnaire were based on previous research and theories, and hence content validity was ensured. On the other hand, convergent validity and discriminant validity makes up for construct validity (McKnight et al. 2002a), also known as factorial validity. *Construct validity* ensures that an operationalization of an item measures what is it conceptualized to measure [Garson (n.d.); Bagozzi et al. 1991, p. 421]. *Convergent validity* means the extent to which the measures for a variable act as if they are measuring the underlying theoretical construct because they share variance (Schwab

[14] See http://www2.chass.ncsu.edu/garson/pa765/statnote.htm

1980 in: McKnight et al. 2002a). *Discriminant validity* means the degree to which measures of two constructs are empirically distinct (Howell et al. 2005; Bagozzi et al. 1991; Davis 1989) or more precisely, that the indicators for different constructs should not be so highly correlated so that they measure the same thing [Garson (n.d.)]. *Nomological validity* refers to whether the construct performs as expected within its nomological network (Schwab 1980 *in:* McKnight et al. 2002a), such as relating to other constructs as theory suggests (Boudreau et al. 2001; Webster and Martocchio 1992).

4.11.3 Multivariate Data Analysis

In determining the multivariate data analysis to use, the first question arises to researchers is whether the data variables are independent or dependent variables (Hair et al. 2006, p. 13). In this study, the data variables include dependent, independent, and inter-dependent variables. Therefore, as per Hair et al. (1998, 2006) for such a data set, the most appropriate technique is to use the interdependence technique. In the interdependence technique all the data are analysed simultaneously with an effort to find an underlying structure for the entire set of variables (Hair et al. 2006).

In this study there are a large number of items to measure the variables. A structure need to be assigned to the variables and the appropriate interdependence technique for multivariate data analysis is factor analysis. Factor analysis can be both exploratory and confirmatory. Previous studies (Hair et al. 1998, 2006; Chen 2007; Cyr et al. 2007; Kim 2003; Lin 2007a, 2007b; Gefen and Straub 2003, 2004; and Lauer and Deng 2007) to explore the factors affecting trust have also used both exploratory analysis (EFA) and confirmatory factor

analysis (CFA). Therefore, in line with previous studies and mainly with the aim of analyzing data simultaneously, EFA and CFA are used in this study.

Exploratory factor analysis (EFA) reduces the data set from a group of inter-related variables into a set of factors and achieves parsimony by explaining the amount of common variance in a correlation matrix (Field 2005). More precisely, it addresses the problem of analysing the structure of the interrelationships, i.e. the correlations, among a large number of variables by defining a set of common underlying dimensions termed as the factors (Hair et al. 2006, p. 104).

On the other hand confirmatory factor analysis (CFA) is conducted using structural equation modelling (SEM) with AMOS 6.0. The primary goal of using SEM is finding a statistically significant theoretical model that has practical and substantial meaning (Schumaker and Lomax 2004). SEM is capable of dealing with multiple observed variables to conduct statistical models and tests. Thus, SEM ensures the fit of the entire model to the data in addition to examining the significance of each casual path (Gefen and Keil 1998; Joreskog and Sorbom 1989; Joreskog and Sorbom 1994; Joreskog and Sorbom 1996).

There are two approaches to SEM— two step and four step approach. The two step approach recommended by Anderson and Gerbing (1988) emphasized the analysis of two conceptually distinct models: a measurement model followed by the structural model. The measurement model or a factor model specifies the relationships among measured (observed) variables underlying the latent variables. The structural model specifies relationships among the latent variables as posited by theory.

On the other hand, the four step approach has been recommended by Mulaik and Millsap (2000). The four step approach is as follows (Schumacker and Lomax 2004).—

Step 1: Specifies an unrestricted measurement model, namely conducting an exploratory common factor analysis to determine the number of factors (latent variables).

Step 2: Involves developing a confirmatory analysis model that tests the relationships among indicator variables and latent variables.

Step 3: Specifies the relations among the latent variables in a structural model. Here, model indices are checked whether the model fits the data.

Step 4: Tests the planned hypotheses in the structural model.

Schumacker and Lomax (2004, p. 108) and Hair et al. (1998, 2006) recommended using Mulaik and Millsap's (2000) four step approach. The four step approach has been used by other researchers like Lin (2007b) and Lauer and Deng (2007) also because of its step-wise evaluation of how the predictor items measure the latent variables starting from the EFA with detection of any cross loadings and eventually conducting the CFA, which gives confirmation to the model and ensures whether the model fits the data (Schumacker and Lomax 2004). Thus, for these reasons a 4 step approach is used for this study.

4.11.3.1 Exploratory Factor Analysis

The structural equation modelling as mentioned by Mulaik and Millsap (2000) entails the exploratory factor analysis of the data to derive the latent variables for each item and the factor loadings associated with each factor. EFA is often considered a precursor to confirmatory factor analysis when the researcher does not have a substantial theoretical model (Schumacker and Lomax 2004). However, in this study, a preconceived theoretical

model is in place and exploratory factor analysis is conducted to find the number and type of latent variables in the plausible model, and to see whether there are any issues of cross loadings. It is used to determine the structure among the variables but is not used in anyway to interpret the data and draw conclusions (Field 2005).

Pre-requirements for Factor Analysis

Having a proper sample size is an important requirement for factor analysis. This study uses a sample size of 703 acceptable responses, and therefore can be considered adequate for factor analysis.

Another pre-assumption of conducting a factor analysis is having some sort of multicollinearity in the data. There are two ways of measuring multicolinearilty, viz. assessing the partial correlations among the variables and the Bartlett Test of sphercity. For assessing the partial correlations, it is essential to visually inspect the correlation matrix to find out any substantial amount of correlations greater than 0.30 amongst the variables. If there are substantial amount of correlations greater than 0.30 amongst the variables, then the factor analysis will not be appropriate (Hair et al. 1998, p. 99). It is further recommended to eliminate any variable(s) which does not correlate with any other variable. The easiest way to reveal this as per Field (2006, p. 648) is a visual inspection of the significance values in the correlation matrix and identify any variable for which the majority of the values are greater than 0.05. Correlation of the variables should be fair enough but not necessarily to be perfect (Hair et al. 2006). The next stage is to check the determinant of the correlation matrix, and if necessary, eliminate one or two variables. The determinant of the correlation matrix must be greater than 0.00001 (Field 2005, p. 648).

On the other hand, the Bartlett Test of sphercity provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables (Hair et al. 1998). Another means to measure the intercorrelations among the variables is the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy. Kaiser (1974) recommends that the diagonal elements of the anti-image correlation matrix (which is derived by most statistical softwares like SPSS) should be barely 0.5; below 0.5 is unacceptable. Moreover, Hutcheson and Sofroniou (1999, pp. 224-225) denotes that values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are superior, and values above 0.9 are excellent. It should be noted that KMO Measure of Sampling Adequacy will increase as the sample size increases, or the average correlation increases, or the number of variables increases, or the value of factors increases (Hair et al. 2006, p. 115).

Field (2005) says that KMO statistic can be tested for multiple and individual variables. The KMO statistic for individual variables is derived from the diagonal of the anti-image correlation matrix. Field (2005, p. 650) recommends that the diagonal elements of the anti-image correlation matrix should be barely 0.5 for all the variables. As for the off-diagonal elements, that show the partial correlations among the variables, it is necessary to have the correlations as small as possible.

Field (2005) further proposes that for factor analysis to work there must be relationship between the variables. The Bartlett Test of sphercity tests the null hypothesis that the original correlation matrix is an identity matrix, and if this is so, then in the R-matrix the correlation coefficients would have been zero (Field 2005, p. 652). Therefore, it is necessary that this test be significant, i.e. have a significance value less than 0.05.

Choosing of the extraction method

The next step in factor analysis involves choosing the method of extracting the factors. Researchers usually use any of the two approaches to factor analysis, viz. common factor analysis and component factor analysis. The objective of a research determines which approach to use. Hair et al. (1998) mention that component analysis is used when the objective is to summarize most of the original information (variance) in a minimum number of factors for prediction purposes whereas common factor analysis is used to identify underlying factors or dimensions that reflect what the variables share in common.

The component factor analysis considers the total variance shared by a variable with other variables in a data set and contains small proportions of unique variances and in some instances error variance (Hair et al. 1998). On the other hand, common factor analysis considers the communalities that is, the shared and common variance amongst the variables (Hair et al. 1998, 2006).

Common factor analysis has more restrictive assumptions and uses latent dimensions (shared variance) and is therefore theoretically based (Hair et al. 1998). However, common factor analysis poses some problems— it suffers from factor indeterminancy, which states that for any individual respondent several different factor scores can be calculated from the factor model results (Mulaik and McDonald 1978). Secondly, for larger sized problems, the computations can take substantial computer time and resources. And, finally the communalities are not always estimable or may be invalid requiring the deletion of the variable from the analysis (Hair et al. 1998).

Field (2005) recommends using component factor analysis as it is a psychometrically sound procedure and conceptually less complex than common factor analysis. However, it does not warrant concluding to rely on this technique compared to the other. There have been considerable debate in deciding which factor model is appropriate (Gorsuch 1990; Mulaik 1990; Snook and Gorsuch 1989; Borgatta et al. 1986) but research indicates that results derived from principal component analysis differs lesser than that of common factor analysis (Velicer and Jackson 1990; Guadagnoli and Velicer 1998) provided that if there are more than 30 variables (Stevens 1992; Gorsuch 1983) and the communalities are greater than 0.6 (Gorsuch 1983). However, with fewer than 20 variables and any low communalities (around 0.4, differences may occur (Field 2005). However, considering the major weaknesses as recommended by statisticians, this research pose to use principal component analysis.

4.11.3.2 The Confirmatory Factor Analysis

On the other hand, confirmatory factor analysis is conducted using Structural Equation Modelling (SEM) in AMOS 6.0. The primary goal of structural equation modelling (SEM) is to find a statistically significant theoretical model that has practical and substantial meaning (Schumaker and Lomax 2004). It is suited to test the proposed hypotheses in a study. It is capable of dealing with multiple observed variables to conduct statistical models and tests. Moreover, SEM ensures the fit of the entire model to the data in addition to examining the significance of each casual path (Gefen and Keil 1998; Joreskog and Sorbom 1996; Joreskog and Sorbom 1994; Joreskog and Sorbom 1989). In order to ensure that the model derived shows goodness of fit, it must assess the goodness of fit using fit indices discussed in elaborately in the next section.

Assessing Goodness of Fit in SEM

Goodness-of-fit indicates how well the specified model reproduces the covariance matrix among the indicator items (Hair et al. 2006). It ensures that there is no difference in the observed covariance matrix and the estimated covariance matrix within the sampling variance. There are several measures for goodness-of-fit and each measure is unique. The basic measures of goodness-of-fit are chi-square (χ^2) and degrees of freedom (*df*).

Chi-square (χ^2):

The chi-square (χ^2) test is a likelihood ratio test statistic and is sensitive to sample size (Hair et al. 2006). It measures the difference between the unrestricted sample covariance and the restricted covariance matrix (Kim 2003). It is mathematically proved by the following equation—

$$\chi^2 = (N - 1)(S - \sum_k)$$

where N is the overall sample size.

S is the observed sample covariance matrix

$\sum_k$ is the SEM estimated covariance matrix.

Degrees of freedom (*df*):

The degrees of freedom (*df*) represent the amount of mathematical information available to estimate model parameters. It is calculated by the following formula—

$$df = {}^1/_2 [(p)(p + 1)] - k$$

where p is the total number of observed variables.

k is the number of free estimated free parameters.

The degrees of freedom (*df*) is dependent on the number of the observed variables and not on the sample size.

Statistical significance of chi-square (χ^2):

In SEM for the measurement model to be fit, the chi-square (χ^2) needs to be insignificant that is, there is no difference between the observed covariance matrix and the estimated covariance matrix (Schumacker and Lomax 2004). This means that the probability of the *p* value should be greater than 0.05 and the chi-square (χ^2) value must be as small as possible (Hair et al. 2006).

The chi-square (χ^2) statistic should not be used a sole indicator for assessing fit of a model. Hair et al. (2006) identifies two major reasons for which the chi-square (χ^2) is problematic to use as a goodness-of-fit measure. First, it is dependent on sample size which means that as sample size increases, chi-square (χ^2) value increases despite the differences between the observed and estimated covariance matrices are identical. Secondly, it increases when the number of observed variables increases. In conclusion, the chi-square (χ^2) and *p* values are less useful when the sample sizes are large.

Therefore, to overcome these problems of influence of sample size and number of variables on goodness-of-fit measures, there are some other fit measures developed over time. There are a large number of fit indices and in this study, the most common ones are discussed based on their usage in previous studies (Chen and Barnes 2007; Kim 2003; Chen 2007; Jarvenpaa et al. 2000). These fit indices are categorized into three groups: absolute measures, incremental measures, and parsimony fit measures.

Absolute Fit Measures

Absolute fit measures indicate how well the model specified by the researcher reproduces the data (Kenny and McCoach 2003 cited in Hair et al. 2006). The common absolute fit measures used for this research are—

(a) Goodness-of-Fit Index (GFI): It is a measure of the relative amount of variance and covariance in the sample covariance matrix that is jointly explained by the population covariance matrix (Byrne 2001).

(b) Adjusted Goodness-of-Fit Index (GFI): It is similar to the GFI except it adjusts the number of degrees of freedom in the specified model.

(c) Root Mean Square Error of Approximation (RMSEA): It takes into account the error of approximation in the population (Byrne 2001) and attempts to answer the question of "How would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?" (Browne and Cudeck 1993).

(d) Normed χ^2: It is the ratio of χ^2 to the degrees of freedom. Usually a ratio of 3:1 is considered appropriate indicating good fit of models; however, in case of samples greater than 750 or other extenuating circumstances, such as a high degree of model complexity, higher ratios are applicable (Hair et al. 2006).

Incremental Fit Measures

Incremental fit indices assess how well a specified model fits relative to some alternative baseline model. The most common baseline model is a null model which assumes that all observed variables are uncorrelated.

Some of the common incremental fit indices are as follows—

(a) Normed Fit Index (NFI): It is the ratio of the difference in the χ^2 value for the fitted model and the null model divided by the χ^2 value for the null model. The NFI ranging from 0 to 1 and NFI = 1, indicates perfect fit.

(b) Comparative Fit Index (CFI): CFI is the improved version of the NFI (Bentler 1990; Bentler and Bonnett 1980; Hu and Bentler 1999). CFI is more widely used as it is relatively but not completely non-sensitive to model complexity. They range between 0 to 1 and values closer to 1 indicate good fit of the model.

(c) Tucker Lewis Index (TLI): TLI predates CFI and is conceptually similar. TLI is not normed and its value can fall below 0 or above 1. In practice TLI and CFI provide similar values (Hair et al. 2006).

Parsimony Fit Measures

Parsimony fit measures are used to provide information about which model among a set of competing models is best, considering its fit relative to its complexity (Hair et al. 2006). They are not useful in assessing the fit of a single model, but only to compare models.

Here, the parsimony ratio (PR) of any model forms the basis of these measures and is calculated as the ratio of the degrees of freedom used by a model to the total degrees of freedom available (Marsh and Balla 1994). The following are some of the parsimony fit indices used in this research—

(a) Parsimony Goodness-of-fit (PGFI): It adjusts the GFI using the PR. When two models are compared, the one with the higher PGFI is preferred based on combination of fit and parsimony represented by this index (Byrne 2001).

(b) Parsimony Normed Fit Index (PNFI): It is a measure derived from adjusting the NFI by multiplying it with the PR (Mulaik et al. 1989). Like the PGFI, when comparing models, high values indicate better fit.

Guidelines for Evaluation of Fit Indices and Establishing Acceptable Fit

In accepting fit for a model, it is necessary to realize that SEM is mainly used in any data analysis for testing hypothesis and not to get a good fit. In fact, getting a desired fit value on a fit index may result in poor practices in model specification (Kenny and McCoach 2003; Little et al. 2002; Marsh et al. 1988). Therefore, it is recommended that fit indices can be increased based on the notion that it does not compromise with testing of the theory that is under consideration (Hair et al. 2006).

There are some guidelines for using fit indices and cut-off values for determining the acceptability of fit for a given model (Hair et al. 2006). These are illustrated as follows—

(i) Using multiple indices of different types: It is recommended that a fairly common set of indices: GFI, AGFI, CFI, TLI, and RMSEA, should be used as has been indicated by previous research (Marsh et al. 2004). These indices have been found to perform adequately across a wide range of situations.

(ii) Adjusting the index cut-off values based on model characteristics: The following table shows the guidelines for using fit indices showing the acceptable level and the interpretation—

Table 4.18: Guidelines for Using Fit Indices

Model Fit Criterion	Acceptable Level	Interpretation
Chi-Square (χ^2) value	Tabled χ^2 value	Compares obtained χ^2 value with tabled value for given *df*
Goodness-of-fit (GFI)	0 to 1	Value above 0.90 indicates good fit.
Adjusted Goodness-of-fit (AGFI)	0 to 1	Value above 0.90 indicates good fit.
Root-Mean-Square Error of Approximation (RMSEA)	< 0.08 (for samples less than 250) < 0.05 (for samples greater than 250)	Values less than 0.05 indicates a good model fit.
Tucker-Lewis Index (TLI)	0 to 1	Value above 0.90 indicates good fit.
Parsimonious Fit Index	0 to 1	Compares values in alternative models

Derived from Schumacker and Lomax (2004, p. 82).

It is important to note that model specification can influence to achieve better model fit indices but care should be taken to ensure that these modifications are done to the best to approximate the theory (Hair et al. 2006).

4.12 ETHICAL ISSUES IN RESEARCH

Considering the ethical ground, no web or e-mail extractor programs were used to derive the e-mail addresses from the specific websites. E-mail extractor programs sometimes break in the encryption and the security measures of the websites and may be considered as violations of cyber laws leading to hacking. However, some studies (Pavlou 2003; Pavlou and Chai 2002) have used web extractor programmes, but at present the online stores and websites of

different organizations have highly secured and encrypted technologies, which makes the use of extractor programs ineffective and not adequate to extract e-mail addresses.

In terms of filling-in the questions in the questionnaire, some researchers emphasize that it is the right that the respondent can fill-in all or a few of the questions (Czaja and Blair 2005, p. 235). In this study, as the php scripts prohibit submission of the scores in the online survey, the respondents are made aware prior to taking part in the survey that they are required to fill-in all the questions or else they cannot complete the survey altogether.

Finally, the issue of confidentiality is ensured. Confidentiality in surveys is a necessity and the data should only be used for research purposes (Brace 2004). Although e-mail addresses have been sought from the respondents when participating in the survey as well as e-mail addresses have been derived from known databases, there has been no leak of privacy and no information has been provided on the whereabouts of any respondent in the study.

4.13 SUMMARY

This chapter provides the development of the survey technique based on the research philosophies considered for this research. Descriptions are provided on how the online survey instrument is developed including operationalization of the variables into measurement items for the questionnaire. Then, detail are provided how data is collected including the techniques adopted for screening the data for choosing the appropriate multivariate data analysis technique. The chapter ends by providing explanation of which multivariate data analysis technique to use.

CHAPTER 5:

DATA ANALYSIS AND RESULTS

This chapter frames out the analysis of the data and presents the results leading to the testing of the hypothesis. The first section presents some descriptive statistics and explores the demographic characteristics of the respondents. In the next section, data is checked to see whether it meets the pre-requirements for multivariate data analysis. Once the data is considered fit from the preliminary analysis, the next step involves applying the multivariate statistics. A four step approach is being adopted to use the multivariate data analysis starting with exploratory factor analysis, development of the measurement model with confirmatory factor analysis, development of the structural model, and finally testing of the hypothesis using Structural Equation Modelling.

The results of the analysis that is, testing of the hypotheses H1-H7 are presented in page 172 along with the model in figure 5.5. The model shows the parameter estimates explaining the relationship and inter-relationships of the factors that affect trust in e-commerce. The results of testing the remaining hypotheses H8(a) and H8(b) are placed in page 179. In section 5.10 (from pages 180-189), illustration are provided of the additional tests to see whether the parameter estimates explaining the relationships in the model (as shown later in figure 5.5) vary across sample groups with varying gender, age, and income.

5.1 DESCRIPTIVE STATISTICS

Descriptive statistics or descriptive analysis is a process of transforming raw data into a form which will make them easy to understand and interpret (Zikmund 2000, p. 436). Analysing the data involves displaying the demographic characteristics of the respondents and then

conducting some preliminary analysis on the data to check whether they comply with the pre-requirements of multivariate data analysis.

5.1.1 Demographic and other Characteristics of the respondents and Internet Usage

The demographic characteristics analysed in this study include age, sex, level of education, and household income. Compared to other research, the questions relating to personal /demographic characteristics were less as the number of questions relating to the study was more. This was done so that respondents move on to the questions relating to the study instead of loosing interest in the survey (as per Dillman 2007).

As mentioned earlier, this study used an online survey and a total of 789 responses were achieved, of which 72 respondents never used the internet to purchase anything online, 14 were deleted as the respondents provided similar scores to the items in the questionnaire indicating that they did not actually involve themselves in the survey. Therefore, a total of 703 usable responses were obtained of which 343 were female (48.8%) and 360 were male (51.2%). Table 5.1 provides a brief summary of the demographic profile and internet usage of the respondents. Additionally, descriptive statistics showing the median, mode, mean, standard deviation, variance, skewness and kurtosis are provided in Appendix B.

Table 5.1: Demographic Profile and Internet Usage of the Respondents

Respondent Characteristics	Both Sex		Male		Female	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Sex						
Male	360	51.2	360	51.2	-	-
Female	343	48.8	-	-	343	48.8
Total	**703**	100	**360**	51.2	**343**	48.8
Age						
≤ 15 years	-	-	-	-	-	-
16 - 25 yrs.	264	37.6	95	26.4	169	49.3
26 - 35 yrs.	217	30.9	117	32.5	100	29.2
36 - 50 yrs.	168	23.9	109	30.3	59	17.2
51+ yrs.	54	7.7	39	10.8	15	4.4
Total	**703**	100	**360**	51.2	**343**	48.8
Education						
No formal education	7	0.1	3	.8	4	1.2
High school graduate	95	13.5	40	11.1	55	16.0
Diploma/ Bachelor degree	159	22.6	71	19.7	88	25.7
Masters /Post Graduate degree	359	51.1	197	54.7	162	47.2
PhD or above	83	11.8	49	13.6	34	9.9
Total	**703**	100	**360**	51.2	**343**	48.8
Income						
≤ £4,999	101	14.4	47	13.1	54	15.7
£5,000 - £9,999	56	8.0	27	7.5	29	8.5
£10,000 - £14,999	80	11.4	37	10.3	43	12.5
£15,000 - £19,999	83	11.8	36	10.0	47	13.7
£20,000 +	383	54.5	213	59.2	170	49.6
Total	**703**	100	**360**	51.2	**343**	48.8

Table 5.1: Demographic profile and internet usage of the respondents (Continued)

Respondent Characteristics	Both Sex		Male		Female	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Years of Internet Usages						
< 1 year	2	3.0	2	.6	—	—
1 - 2 yrs.	1	0.1	—	—	1	.3
2 - 3 yrs.	14	2.0	7	1.9	7	2.0
3 - 5 yrs.	50	7.1	20	5.6	30	8.7
5 + yrs.	636	90.5	331	91.9	305	88.9
Total	**703**	100	**360**	51.2	**343**	48.8
Usages of Internet (Per week)						
< 1 h per week	7	1.0	—	—	7	2.0
1 - 3 h per week	45	6.4	18	5.0	27	7.9
3 - 10 h per week	141	20.1	69	19.2	72	21.0
10 - 20 h per week	189	26.9	92	25.6	97	28.3
20 + h per week	321	45.7	181	50.3	140	40.8
Total	**703**	100	**360**	51.2	**343**	48.8
Amount Purchased Online (in a year)						
< £100	146	20.8	53	14.7	93	27.1
£100-£500	277	39.4	125	34.7	152	44.3
£500-£1,000	133	18.9	75	20.8	58	16.9
£1,000-£2,000	76	10.8	52	14.4	24	7.0
£2000 +	71	10.1	55	15.3	16	4.7
Total	**703**	100	**360**	51.2	**343**	48.8

5.2 ASSESSING THE PRE-ASSUMPTIONS FOR MULTIVARIATE DATA ANALYSIS

After conducting the descriptive statistics, the next step involves ensuring whether the data is suitable for multivariate data analysis or not. This means to ensure whether the data is in compliance with certain assumptions for multivariate data analysis. This is necessary because this research like most research involves a number of variables and makes the potential distortions and biases more potent when the assumptions are violated (Hair et al. 2006, p. 79). Moreover, in almost all instances the multivariate procedures will produce results even when the assumptions are seriously violated, and therefore researchers must be aware of such violation of assumptions and the implications that they may arise on the estimation process or the interpretation of the results (Pallant 2007; Hair et al. 2006, 1998; Field 2005).

A number of tests can be undertaken for ensuring that the assumptions for multivariate data analysis are not violated. Usually researchers recommend on checking the normality of the distribution of the data, homogeneity of variance, and tests of linearity (Hair et al. 1998; 2006; Field 2005; Pallant 2007; Chen 2004; Kim 2003), which are discussed as follows:

5.2.1 Test of Normal distribution of Data

The first test for ensuring that the data conforms to the pre-requirements of multivariate data analysis is to check the normality of the distribution. The test of normality refers to the shape of the data distribution for an individual variable and its correspondence to a normal distribution. It is usually represented in the form of a curve which is a symmetrical, bell-shaped distribution that describes the expected probability of distribution of many chance occurrences (Zikmund 2000, p. 376).

In this study, each question in the questionnaire (as in appendix A) is considered an item and has been assigned a code (as explained in detail in section 4.6). As stated earlier, these coding have been rearranged for the items to improve for clarity and facilitate the analysis (as in appendix A). Each variable is measured by a certain number of items as explained in chapter 4. Therefore, the test of normality is performed on each of these items to see whether there is any non-normality in the distribution.

To check the normality statistically, the first check is on the value of the skewness and kurtosis of each item. In a normal distribution, the value for skewness and kurtosis is usually zero. Since this is a sample drawn out of a large population, it is obvious that the value for skewness and kurtosis is not necessarily to be zero because the sample is very small compared to the entire population. However, there are some criteria determined by previous researchers which roughly help to decide whether the sample data is derived from a population that is normally distributed or not. For instance, Bowley (1948) recommends that a data sample to be considered normal when $-1 < \text{skewness} < 1$. Bowley (1948) further mentions that skewness values of 0.1 as a moderately skewed distribution and 0.3 as a high degree of skewness. However, Kline (1998) notes that value for skewness greater than 3.0 will be considered as non-normal. On the other hand, Curran et al. (1996) preferred values between 2.0 and 3.0 for skewness of a data sample; above 3.0 will be considered as extremely non-normal.

Similarly for kurtosis, which refers to the peakedness of the frequency distribution or flatness of a distribution (Hair et al 1998, p. 71) as expressed in a curve, Kline (1998) mentions that absolute values greater than 10 is problematic and when the value is greater than 20, it may

be considered as seriously non-normal distribution. Accordingly, Curran et al. (1996) mentioned that values between 7 and 21 can be considered moderately non-normal.

The measures of skewness and kurtosis are shown in appendix B. From appendix B, all of the items have skewness between a range of -1 and 1 [as per Browley's (1948) criteria] except for items TRUST_6, RISK_4, UIQ_3, PPIQ_5, and REL_BEN_1. These variables exceed the range of the limits as recommended by Browley (1948) for a few fractions but will be considered to be normal as per the criteria of Kline (1998) and Curran et al. (1996). As for kurtosis, all of the variables have values within the limits but have negative scores indicating flatter distributions.

To make the results more informative and standardized, statisticians also recommend looking into the z-scores of the skewness and kurtosis because both skewness and kurtosis have an associated standard error (Chen 2004, Zikmund 2000; Field 2005, p. 72). However, other researchers (like Field 2005) caution that with sample sizes greater than 200, z-scores will not be convenient as the tests will not produce significant results of deviation from normality. Therefore, it is better to rely on the graphical analysis to detect any non-normality in addition to the measures of skewness and kurtosis (Hair et al. 2006, 1998; Field 2005). Hence, z-scores are not tested in this study.

For graphical analysis, it is necessary to have a visual inspection of histograms for each item as shown in Appendix D. Appendix D reveals that none of the items have any problems of non-normality although there were some degrees of skewness which is within the limits as prescribed by Curran et al. (1996). Additionally, the frequency of the responses of the items

by the respondents is provided in Appendix C. Therefore, it can be inferred that all items conform to standards of normality of distribution.

Some statisticians (like Pallant 2007) also recommend additional tests like Kolmogorov-Smirnov and Shapiro-Wilk tests. However, as stated earlier, since this study involves a large sample size, it is very easy to get significant results of deviation from normality with such tests. Therefore, in case of large samples, a significant test does not necessary tell whether the deviation from normality is sufficient to bias any statistical procedure that is applied to the data (Field, 2005, p. 93). Hence, as recommended by Field (2005), Pallant (2007), and Hair et al. (2006) it is better to rely on the graphical analysis (i.e. to look into the shape of the distribution visually) as done earlier to detect any non-normality in addition to the measures of the skewness and kurtosis.

5.2.2 Detection of Outliers

Once the normality of the distribution is ensured, it is necessary to check whether there are any outliers in the distribution. Outliers are observations with a unique combination of characteristics identifiable as distinctly different from the other observations (Hair et al. 1998, p. 64). Typically, it is judged to be an unusually high or low value on a variable, or a unique combination of values across several variables that make the observation stand out from the others (Hair et al. 2006, p. 73).

To check whether the distribution has any outliers, the histograms as in Appendix D are inspected. As per Pallant's (2007, p. 61) suggestion, the tails of the histogram are first inspected to find out whether any data points are sitting on their own, i.e. whether they are outside the normal distribution. Some constructs reveal that there are some data points in

extremes but not that significant in visualization. Hence, this is considered a common phenomenon in social research (McCole 2001; Field 2005).

Now, it is necessary to determine whether these outliers are genuine or not and to ensure that the entries are exclusively that of the respondents (Field 2005). Therefore, it is double-checked whether any errors were made in entering the data to the SPSS work sheet. On inspection, no flaws were detected and it can be assumed that the entries made by the respondents are genuine that is, they are only made by the respondents alone. Now, the question arises whether the extreme data points are creating problems for the normality of the distribution? Usually at this stage, researchers in business management and social science must determine what to do with these extreme cases. Some statisticians suggest removing all these extreme cases from the data (Pallant 2007; Chen 2004). Others (Tabachnick and Fidell 2001) suggest changing the values to a less extreme value and hence including the case in the statistics. However, Hair et al. (2006, 1998) recommend that outliers to be retained unless there is demonstrable proof that they are aberrant and not representative of any observations in the population. In order to check this, the descriptive statistics table is inspected as in Appendix B to compare the original mean with the 5% Trimmed Mean, which is the derived by SPSS by removing the top and bottom 5 per cent of the cases and then calculating a new mean value (Field 2005). On visual inspection, it is observed that none of the constructs have extreme differences in the original mean and the 5% trimmed mean. Hence, these extreme cases are retained and further data analysis is carried on. This is in line with Hair et al.'s (2006) argument that if outliers do represent a segment of the population, which obviously in this data set is true and plausible, they are be retained to ensure generalizability.

5.2.3 *Test of Homogeneity of Variance*

The test of homogeneity of variance ensures that "as we go through the levels of a variable, the variance of the other variables should not change" (Field 2005, p. 97). This means that if there are groups of data, then the variance of the outcome variable or variables would be the same in each of these groups.

A common measure for test of homogeneity of variance is the Levene's test. Levene's test requires groups of respondents. In this data, there are two groups of respondents, viz. male and female. The analysis of the variables is done on the basis of these two groups. Levene's Test is suggested to be initially done using untransformed data (i.e. those data not subject to transformations) and therefore, a clear picture of the variances of the group for each variable using the raw data can be obtained. If Levene's test is significant for any variable (i.e., $p \leq .05$) at significance level of 95%, it can be concluded that the null hypothesis has been rejected and there are significant differences in the variances amongst the groups (Field 2005, p. 99). Now, if Levene's test is not significant ($p > .05$), it can be assumed that there is no difference in the variance in the variables amongst the two groups— the variance is roughly equal and the assumption is tenable.

Hair et al. (1998, p. 73) mentions that Levene's Test is used to show the dependence relationship between variables. As a pre-requirement the dependent variable must be metric and the independent variables can be either metric or non-metric (Hair et al. (1998, 2006). In this research most of the variables are non-metric and the variables are inter-dependent and only two variables, viz. trust and perceived risk, are dependent. On analysis using untransformed data of the variables, using SPSS for testing the Levene's Test, the results are computed and are shown as in Appendix F. From the results, it is observed that four of the

constructs, viz. MKT_OR_3, RISK_4, SEC_TRST6, and REL_BEN2 have been identified to show significant results of the Levene's test and therefore the variances are significantly different. None of these construct measure variables which are metric, and the only construct, RISK_4, relate to a dependent variable, perceived risk. When this is the situation of not having the dependent variables to be metric, it is recommended by Hair et al. (1998, p. 75) that the histograms showing the frequency distribution be visualized to see whether these items have normality in their distribution. As per appendix D, all of these items are normally distributed with slight skewness but within the limits as suggested by Kline (1998) , Bowley (1948), and Curan et al. (1996). Therefore, on the basis of these results it can be inferred that the data displays homogeneity of variance.

5.2.4. *Linearity among the Variables*

Zikmund (2000) and Pallant (2007, p.121) recommend that to analyse the association of linearity among the variables, the best approach would be to construct the Pearson's Correlation Coefficient Matrix. If a variable has majority of no-correlations with other variables, there poses a problem for the data to undergo any multivariate data analysis and indicates that there is lack of linearity amongst the variables. Appendix G shows the correlations for the items of the questionnaires and visual analysis indicate that there exists reasonable amount of correlation amongst the items with very few exceptions and can be inferred that there exists linearity in the data.

Graphical observations in scatter plots can also be used to check linearity (Pallant 2007), but due to large sample size, it is convenient to stick with the statistical analysis using correlation matrix (Field 2005).

Based on all these preliminary analysis, it can be concluded that the data meets the pre-requirements of multivariate data analysis, and therefore the next step involves conducting the multivariate data analysis. However, in addition to the preliminary analysis, there are two assumptions that need to be in place to ensure that whether the data is fit for parametric tests like multivariate data analysis (Field 2005). These include—

(a) Use of Interval data: This means that the data obtained from the respondents can be measured in intervals. In this study, a 5-point Likert Scale is being used (discussed earlier in detail in Chapter 4). Here, the distance between the points of scale are equal at all parts in the scale of measurement.

(b) Independence of Observations: In this study, the observations or responses from the respondents do not influence each other. This means that behaviour of one participant does not influence the behaviour of another participant in the study.

5.3 TEST OF RELIABILITY

Prior to conducting multivariate data analysis, it is necessary to check the reliability and validity of all the items (Chen 2004; Hair et al. 1998). SPSS 14.0 was used to check the reliability of each of the variables; results are displayed in Appendix H. The reliability was tested with the option of deriving the inter-item correlation matrix to check whether there are any negative values. The presence of negative values would indicate that some of the items have not been correctly reverse scored (Pallant 2007). One item, MKT_OR_5 had to be reverse scored and reliability tests were conducted after transformations were performed on this item. In addition, Corrected Item-Total Correlations need to be checked in the table Item-

Total Statistics to ensure that each item correlates with the total scores. If values are less than 0.3, the item is measuring something different from the scale as a whole (Pallant 2007).

On evaluating the output as in Appendix H, it is observed that the Cronbach Alpha for Market Orientation is 0.69 and the item Trans_MKT_OT_5 (transformed MKT_OR_5) has a value of less than 0.3 as for the corrected item-total correlations. The correlated item correlation shows the degree to which each item correlates with the total score (Pallant 2007). Therefore, this item is dropped off and as a result the Cronbach Alpha score has been raised to 0.70 which is suitable as per the guidelines as per as Nunnally (1978), Field (2005), and Pallant (2007). Additionally, the variables— relational benefit and organizational reputation, had a Cronbach Alpha score of 0.58 and 0.60 respectively, which are acceptable values for data analysis in social science research as per Kline (1999 cited in Field 2005), where he recommends Cronbach Alphas as low as 0.5. In conclusion, all the other variables had Cronbach alpha scores above 0.5 and can be deemed as reliable for this study (Zikmund 2000; Field 2005; Fornell and Larker 1981).

5.4 CONDUCTING THE MULTIVARIATE DATA ANALYSIS

As per the four steps recommended by Mulaik and Millsap (2000) as illustrated in chapter 4, the first step of the multivariate data analysis is to conduct the exploratory factor analysis.

5.4.1 Conducting of Exploratory Factor Analysis

Exploratory factor analysis (EFA) reduces the data set from a group of inter-related variables into a set of factors and achieves parsimony by explaining the amount of common variance in a correlation matrix (Field 2005). There are some pre-requirements for conducting

exploratory factor analysis. One of them, as mentioned earlier in chapter 4, is to have a test of multicollinearity. To test for multicollinearity is to check the correlation matrix of the items of the variables as shown in appendix G. Appendix G shows that some of the variables have significance values greater than 0.05. However, this does not indicate that there is lack of correlation; correlation of the variables should be fair enough and need not necessarily be perfect (Hair et al. 2006). Additionally the value of the determinant is inspected. The determinant is 0.00000000102, which is very much below the required value of 0.00001 recommended by Field (2005) and requires for further inspection.

Therefore, another test of multicollinearity that is, the KMO Measure of Sampling Adequacy is inspected. The KMO Measure of Sampling Adequacy shows a value of 0.87, which as per Hutcheson and Sofroniou (1999) is superior. As for the KMO statistic for individual variables, it is necessary to look into the diagonal elements of the anti-image correlation matrix (as obtained from the output in SPSS 14.0 but not provided in this thesis because of the bulkiness of the data). It is observed that all the values in the diagonal elements of the anti-image correlation matrix are well above 0.5, and the values of the off-diagonal elements, representing the partial correlations in the anti-image correlation matrix, are very small. Finally, it is also obtained from the output that the Bartlett's measure of sphericity (that is, the test of the statistical significance that the correlation matrix has significant correlations among the items of the variables), is highly significant (i.e. $p < 0.001$). All these indicate that the data is suitable for a good factor analysis.

Exploratory factor analysis (EFA) generates both unrotated and rotated factor loadings. The unrotated factors may not provide a meaningful pattern of the variable loadings, and usually it is difficult to determine whether unrotated factors will be meaningful (Hair et al. 1998).

Therefore, rotation is desirable because it simplifies the factor structure. Hair et al. (2006) recommends that the simplest case of rotation is orthogonal factor rotation, in which the axes are maintained at 90 degrees. The other form is oblique rotation where it is possible to rotate and the axes and not retained at 90 degrees angle.

Orthogonal approaches are more widely used as most computer packages (viz. SPSS) contain orthogonal rotation options (Hair et al. 1998, p. 109). Moreover, orthogonal rotations are also used more frequently because the analytical procedures for performing oblique rotations are not as well developed and are still subject to considerable controversy (Hair et al. 2006, p. 126). Therefore, this research uses the orthogonal approach with VARIMAX rotation. VARIMAX rotation is used as it provides a clear separation of the factors (having variable factor correlations close to either -1 or +1 indicating a clear positive or negative association between the variable and the factor; or close to 0, indicating clear lack of association) [Hair et al. 2006].

A thing to note is that in interpreting the loadings of the rotated factor matrix, there are some basic rules of thumb for preliminary examinations which are based more on practical significance. Factor loadings greater than ±.30 are considered to meet the minimal level; loadings of ±.40 are considered more important; if they are more than ±.50 they are considered practically significant; and loadings exceeding ±.70 are considered indicative (Hair et al. 1998). Extreme loadings above 0.80 are not typical and these guidelines provided are applicable when the sample size is 100 or larger and where the emphasis is on practical, not statistical, significance (Hair et al. 2006).

As for statistical significance there are further few specific recommendations as derived from Hair et al. (1998) from the computations made with SOLO *Power Analysis*, BMDP Statistical Software Inc., 1993. These are as follows—

Table 5.2: Factor Loadings and Corresponding Sample Size need for Statistical Significance

Factor Loadings	Sample Size needed for Significance[a]
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100
0.60	85
0.65	70
0.70	60
0.75	50

[a] Significance is based on a 0.05 significance level, a power level of 80 per cent, and standard errors assumed to be twice those of conventional correlation coefficients.

SOURCE: SOLO *Power Analysis*, BMDP Statistical Software Inc., 1993 [derived from Hair et al. (1998, p. 112)].

Based on these assumptions and recommendations, the rotated component matrix is derived as shown in Table 5.3 showing the loadings of items on the factors.

The results in table 5.3 show that some of the items (indicated by having them shaded)—RISK_4, MKT_OR_1, PPIQ_5, and PPIQ_6, have cross loading problems. All the other items loaded on their respective factors. The items which have cross loadings are placed

within the column of the factors to which they would have expected to load for clear visualization. Although these do pose a problem, but at this stage none of the items will be deleted. This is because exploratory factor analysis does not generally reveal any optimal solutions or unique interpretations to the factors (Mulaik 1972).

There are some weaknesses of exploratory factor analysis (EFA) that need to be illustrated. They fail to show the relationship among the variables in a dataset. EFA is suitable for data which shows linearity and casual relationships, which are not linear, are not revealed (Stapleton 1997). Additionally, Mulaik (1987) points out that inaccurate results may arise from the use of the mechanics of method as EFA is dependent on specific theories for extraction and rotation procedures of the factors. Therefore, to overcome these weaknesses, it is recommended to conduct further analysis like confirmatory factor analysis (Mulaik 1972, 1987; Hair et al. 2006) using SEM to see if any of the items need to be deleted. Thus, CFA is adopted in following stage of the analysis.

Test of Common Method Bias

Before conducting the confirmatory factor analysis, it is necessary to ensure whether there are any issues of common methods bias. There are a couple of ways of testing the common method bias. First is the Harman's one-factor test (as recommended by Podsakoff et al. 2003). As explained in section 5.4.1, all the items were entered in an exploratory factor analysis (EFA). The results indicated that no substantial amount of common method variance existed as the findings did not show any single factor to emerge from the factor analysis and no one general factor accounted for the majority of the covariance among the variables. Moreover, the EFA revealed the presence of nine distinct factors with eigen value greater

than 1.0, rather than a single factor. Hence, this is another indication of absence of common method bias.

Lastly, as per appendix G, the correlation matrix shows that most of the correlations for the items are less than 0.90. As per Pavlou et al. (2007), if any of the two items had correlation above 0.90, there is an indication that there are chances of common method bias.

Table 5.3: Principal Component Analysis with VARIMAX rotation for Overall Sample, $N = 703$

Item Code	Variable/Item	Factor Loading
TRUST		
TRUST_1	Most commercial websites (from which I shop/had shopped) have the necessary skills and ability to carry out an online transaction.	.771
TRUST_2	Most commercial web sites have the necessary technological capability *(e.g. to process transactions, keep track of previous purchases of customers, etc.)* to carry out the online transaction.	.662
TRUST_3	The chance of having a technical failure in an online transaction is quite small. *(e.g. unable to accept payments by credit cards)*	.470
TRUST_4	I can predict performance of e-commerce web sites from past experience with them.	.389
TRUST_5	I tend to be confident when I am dealing with the e-commerce web sites that I have had a pleasant experience with.	.622
TRUST_6	Future expectations on e-commerce websites is related to past experiences with them.	.607
TRUST_7	Most e-commerce websites that I shop in are safe in online transactions. *(e.g. conducting a transaction in an encrypted manner so that they don't fall in hands of scrupulous parties)*	.599
TRUST_8	Most e-commerce websites are open and receptive to customer needs.	.611
TRUST_9	Most e-commerce websites keep their customers' best interest in mind during most transactions.	.598
MARKET ORIENTATION		
MKT_OR1	The e-commerce web sites that I have visited are generally effective in collecting customers' information. e.g. *personal information, credit card information, preferences, etc.*	.304
MKT_OR2	Most e-commerce websites encourage customers to send their feedback on any issues.	.706
MKT_OR3	My opinion as a customer is reviewed and exchanged effectively through e-commerce web sites.	.778
MKT_OR4	My opinion can influence the way e-commerce web sites serve customers.	.620
MKT_OR5	My opinion as a customer can be easily lost in the amount of information.	

Item Code	Variable/Item	Factor Loading
MKT_OR6	Usually I receive a timely response from the e-commerce websites from which I purchase.	.491
MKT_OR7	Usually any issues relating to online purchases can be solved effectively and satisfactorily once I have contacted the web sites with my problems.	.394
PERCEIVD RISK		
RISK_1	Online purchases are risky as my credit card information may be shared with other parties.	.715
RISK_2	Online purchases are risky as there is a chance that payment may be taken but delivery may not be made.	.832
RISK_3	Online purchases are risky because the products / services delivered may fail to meet my expectations.	.789
RISK_4	Online purchases are risky because it may cause others to think less highly of me.	-.401
RISK_5	Online purchases are risky in terms of time because the products/services may fail to be delivered within the expected time frame.	.689
PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS		
SEC_TRST1	E-commerce technologies can detect fraudulent actions in e-commerce transactions. (*e.g. if the customer uses other person's credit card, wrong address, etc.)*	.737
SEC_TRST2	E-commerce websites can detect incorrect information when provided by online users.	.664
SEC_TRST3	The technologies used by the e-commerce websites are secure and reliable in conducting transactions.	.612
SEC_TRST4	Technological mechanisms can prevent a third party from stealing online customers' information.	.612
SEC_TRST5	I have a feeling that no one can access the data of e-commerce websites without permission.	.543
SEC_TRST6	E-commerce systems are capable of processing a large number of transactions efficiently.	.480

Item Code	Variable/Item	Factor Loading
USER INTERFACE QUALITY		
UIQ_1	E-commerce websites from which I purchase have appropriate features suitable for online shopping.	.557
UIQ_2	E-commerce websites from which I purchase are convenient for searching for the products required by me.	.725
UIQ_3	E-commerce websites from which I purchase are easy to navigate.	.686
PERCEIVED PRODUCT INFORMATION QUALITY		
PPIQ_1	E-commerce websites provide up-to-date information about the products that they sell.	.580
PPIQ_2	E-commerce websites have product information that is easy to understand.	.678
PPIQ_3	E-commerce websites have information on product to be consistent (i.e. in other words, not changing and conflicting).	.732
PPIQ_4	The information on products sold in an e-commerce websites is relevant.	.709
PPIQ_5	I am unlikely to shop at an e-commerce website where information on products is inadequate.	.554
PPIQ_6	E-Commerce websites that I shop at are entertaining.	-.447
RELATIONAL BENEFIT		
REL_BEN1	When I purchase online, I save time.	.733
REL_BEN2	When I purchase online, I reduce my effort in searching for products.	.810
REL_BEN3	I purchase those items from e-commerce websites which are difficult to purchase in traditional stores.	.826
REL_BEN4	I purchase those items from e-commerce websites which are costly to purchase in traditional stores.	.781

Item Code	Variable/Item	Factor Loading
IMPORTANCE OF ORGANIZATIONAL REPUTATION		
ORG_REP1	I prefer to shop from well reputed online stores.	.642
ORG_REP2	A well known website posses less risk in e-commerce.	.571
ORG_REP3	Lack of knowledge about particular websites discourages me to shop from them.	.736
SOCIAL PRESENCE		
SPIR_1	There is a sense of human contact and personal touch from the e-commerce websites from which I purchase.	.862
SPIR_2	There is a sense of sociability in the e-commerce website from which I purchase.	.938
SPIR_3	There is a sense of human sensitivity and warmth in the e-commerce websites from which I purchase.	.938

5.4.2 The Confirmatory Factor Analysis: Development of the Measurement Model

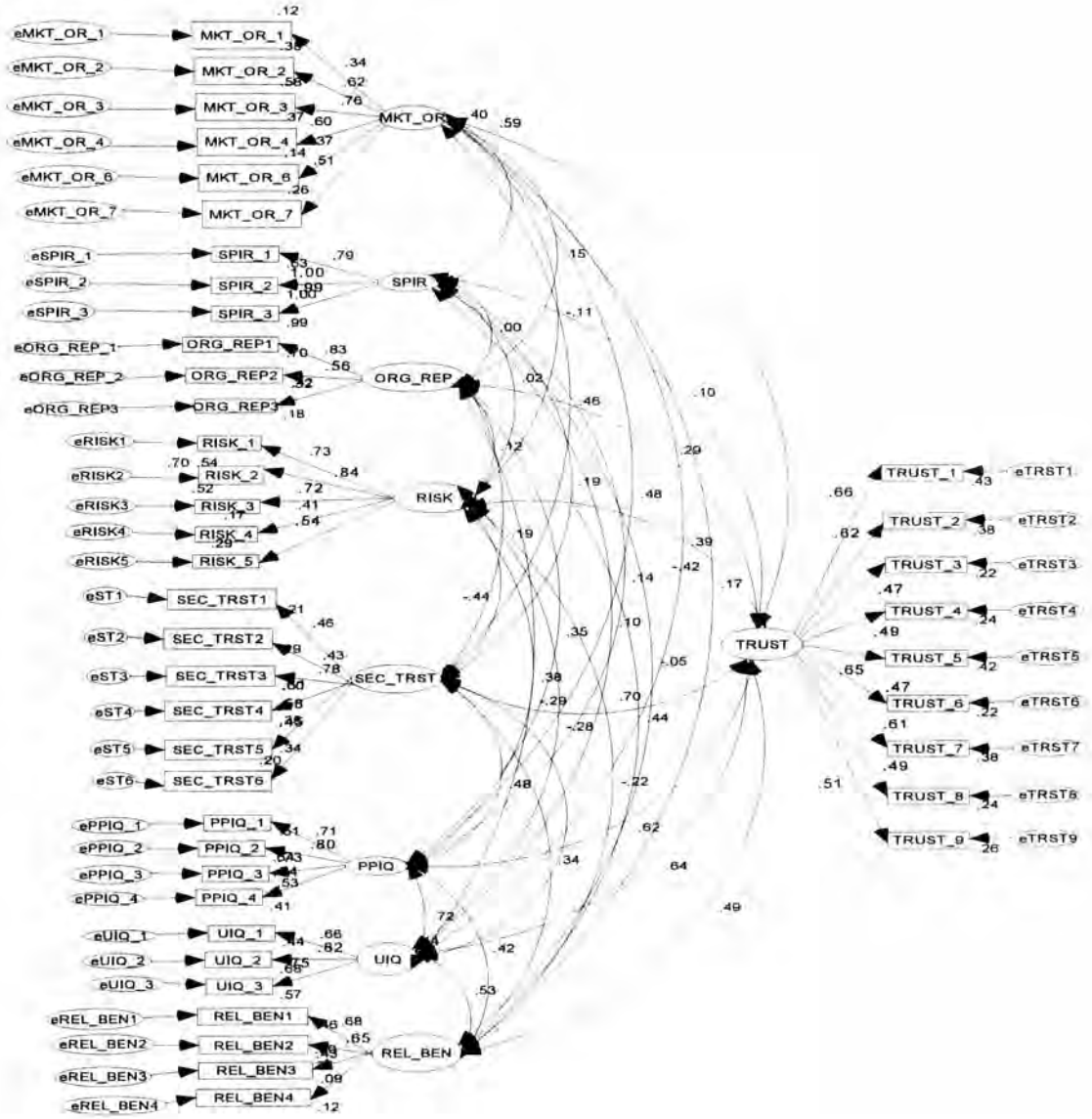
The essence of developing a measurement model of all the variables is to produce a confirmatory result to see whether the items load on the factors that have been theorized. The measurement model is used to define the relationships between the latent variables and the observed variables (Schumacker and Lomax 2004, p. 200). In this study measurement models are developed using AMOS 6.0 for each and every measurement items. Initially, the development of the model starts with model specification. Standard rules and procedures are applied so that the sample used in conducting the confirmatory factor analysis (CFA) can be used in to test the structural model (SEM).

Before conducting CFA, the first thing is to check whether the items for the construct have face validity. Since the questions (item wordings) for the constructs represent the conceptualization of the literature of each and every variable, it can be interpreted that face validity is ensured. In addition, Hair et al. (2006) says before conducting the measurement model the within and between-error covariance terms should be fixed to zero and all measured variables should be free to load on one construct. Thus, this is also ensured.

The measurement model is shown in Fig.5.1 as developed in AMOS 6.0. The constructs are independent, all constructs are allowed to correlate with all other constructs, all measured items are allowed to load on one construct only, and the measurement error items are not allowed to relate to any other measurement variable. As a rule of thumb, the measurement model must have at least three items per construct (Schumacker and Lomax 2004; Kline 2005; Hair et al. 1998); therefore the order condition is satisfied and the model is overidentified. Given the number of indicators and an adequate sample size, no problems with rank condition are expected either. If there are such problems, it will emerge later during the analysis (Hair et

al. 2006). All the measures are reflective that is, the direction of the causality is from the latent construct to the measured items.

Figure 5.1: The Measurement Model



5.4.2.1 Assessment of the Measurement Model

The model is assessed whether it has goodness in fit by first checking on the chi-square value, χ^2 which is 3011.72 with degrees of freedom= 824, p=0.000 (i.e. $p < .05$), indicating that chi-

square value is significant. Hence, the observed covariance matrix does not match the estimated covariance matrix with sampling variance. Therefore, it is recommended to check the fit indices (Schumacker and Lomax 2004). Thus, GFI= 0.81, AGFI = 0.78, CFI= 0.83, and RMSEA = 0.061 indicating unacceptable fit of the model (Chen and Barnes 2007; Chen 2007; Hair et al. 2006). Therefore, additional diagnostic information (as provided by CFA in AMOS 6.0) need to be checked to bring in any modifications for any unaddressed problems as well as improving the model's test for measurement theory. In confirmatory factor analysis, there are many diagnostic tests. In this study, useful and easy ones are used and are discussed below.

5.4.2.2 Diagnosing the Measurement Model

In conducting the diagnostic test, the procedures recommended by Hair et al. (2006, p. 812-815) are used. The first step includes analyzing the path estimates. The path estimates are the standardized loadings of constructs to indicator variables. Loadings should be at least |0.5| and ideally |0.7| or higher (Hair et al. 2006). The output of the results for this model (as in fig. 5.1) shows that all the loadings are above |0.5| except for the items— RISK_4, TRUST_3, TRUST_4, TRUST_6, TRUST_8, REL_BEN3, REL_BEN4, SEC_TRST1, SEC_TRST2, SEC_TRST6, MKT_OR_1, MKT_OR_6, and ORG_REP3. These items may be deemed for deletion, but unless some other evidence suggests that they are problematic, they are retained for the time being (Schumacker and Lomax 2004). Moreover, the parameter tests of the significance for each estimated coefficients show that all estimates are significant (i.e. $p < 0.01$). No offending estimates (i.e. standardized loadings above 1.0 or below -1.0) are also found in the output. Hence, all the items are retained for the moment.

After checking on the path estimates, the next step is inspecting the residual matrix. Residual refers to the difference between the observed covariance or correlation and the reproduced

covariance or correlation (Schumacker and Lomax 2004, p. 178) and the standardized residuals are the raw residuals divided by the standard error of the residuals (Hair et al. 2006, p. 796). As a rule of thumb, residuals should be smaller as possible; typically residuals less than |2.50| do not pose a problem but above |4.00| is a potentially unacceptable degree of error. The most likely, but not automatic, response is to dropping one of the items associated with a residual greater than |4.00| (Hair et al. 2006).

On inspection of the results from the output in AMOS 6.0, a number of residuals have been derived which are greater than |4.00|. The largest residual is between the items, SEC_TRST6 and UIQ_1, is 10.35 and the modification index is 117.44, which is very high. Additionally, SEC_TRST6 has high residuals with other items with their residuals being displayed within the brackets, viz. ORG_REP2 (4.66), UIQ_2 (4.41), PPIQ_1 (4.44), PPIQ_4 (4.40), TRUST_6 (4.41), and TRUST_7 (4.27) and their respective modification indices are 10.16, 30.26, 28.14, 24.32, 30.00, and 2.08, respectively. It is also observed that the standardized loading for SEC_TRST6 is well below |0.5|. Moreover, EFA revealed that the item had cross loading problems. Reliability tests also revealed (earlier) that corrected item-total correlations for SEC_TRST6 is less than 0.3 and if the item is dropped then Cronbach Alpha for the variable Perceived Security and Technological Trustworthiness (SEC_TRST) goes up. Based on all these results, SEC_TRST6 need to be deleted to bring modifications to the model.

The second largest residual is 9.89 between REL_BEN4 and REL_BEN3. Both these items have loadings less than |0.5| and the modification index is 116.65, which is high but these items cannot be deleted on grounds of substantial theoretical importance to the study and to maintain consistency with the congeneric property of the model (Hair et al. 2006). The third largest residual is 8.73 between TRUST_8 and TRUST_9. These items are also retained

because of theoretical importance of these items to the study (Hair et al. 2006). The same is the case for TRUST_1 and TRUST_2 with residuals to be 6.19, but since both items are of significant importance to theory of the study, they are retained.

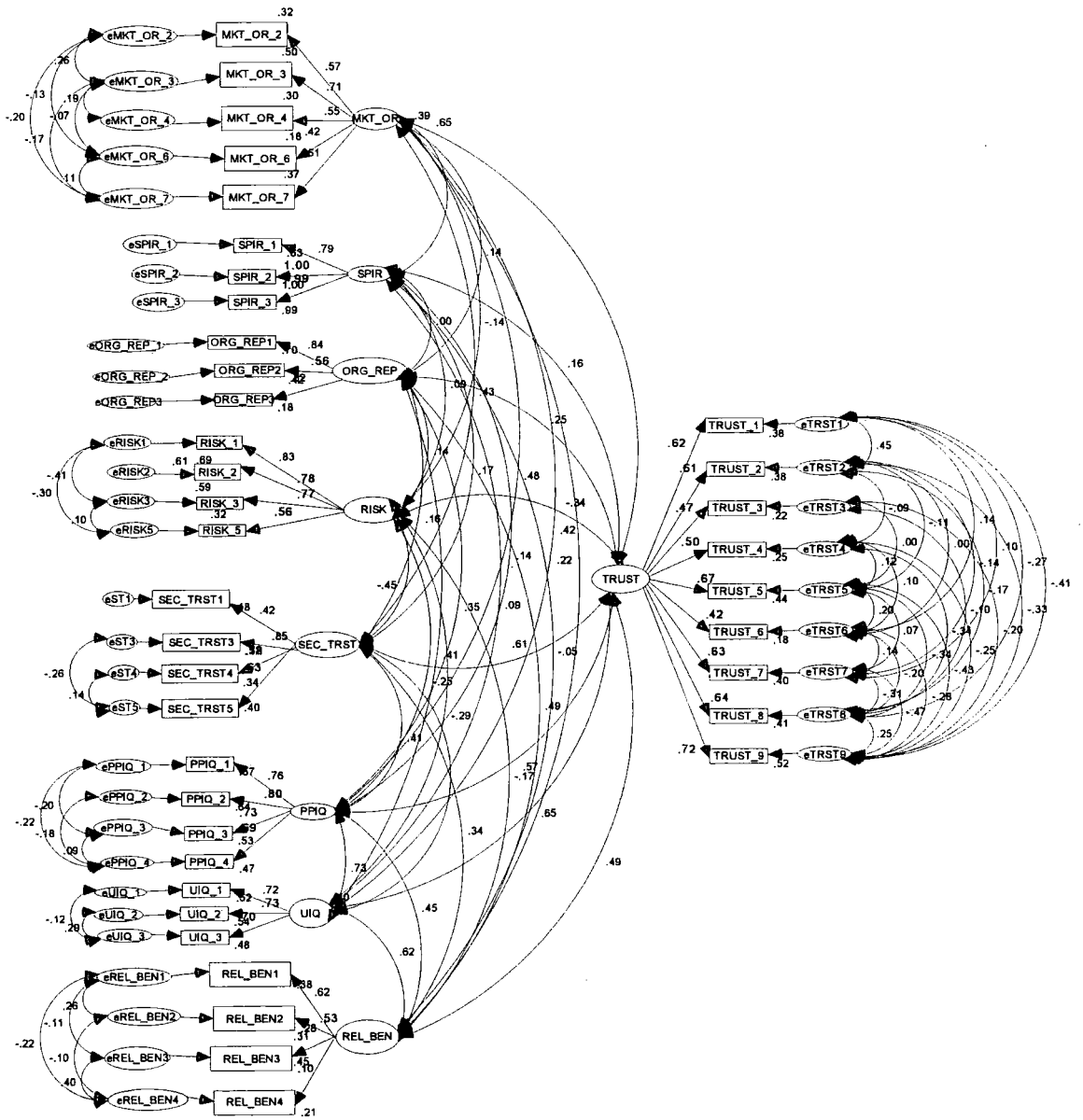
The fourth largest residual is 7.15 between SEC_TRST1 and SEC_TRST2. Both these items have loadings less than |0.5| and the modification index is 68.15, which is very high. On inspection of the question of item SEC_TRST2 and based on the results of the analysis, it further depicts deletion of this item for modification to the model.

RISK_4 is the item which has largest number of residuals with SPIR_3 (6.00), SPIR_1 (5.79), SPIR_2 (5.91), SEC_TRST1 (25.30), TRUST_7 (-4.59), TRUST_6 (-4.39), and TRUST_5 (4.81) and their respective modification indices were 45.08, 42.93, 43.51, 26.56, 33.17, and 23.20. Also RISK_4 has low loadings and all these results indicate deleting the item from the model.

MKT_OR_1 and UIQ_1 have a residual of 6.23. MKT_OR_1 has low standardized loadings and the modification index is 42.20. EFA also revealed that MKT_OR_1 had cross loading problems, and therefore, the item is now deleted. Further inspection reveal that a number of other items do have residuals greater than |4.00| but since they were of substantial theoretical importance to the study, they are retained for the model. Various authors [Schumacker and Lomax 2004; Hair et al. 1998, 2006; Garson (n.d.); Bagozzi et al. 1991, p. 421] have recommended to depend on the theory to develop the model rather than absolutely rely on the modifications recommended by the data.

Once the residuals and the modification index have been checked, the next step involves introducing the covariance as indicated in the Modification Index for further modification of the model[15]. Now, when all modifications have been done, the measurement model takes the shape as follows—

Figure 5.2: The Measurement Model after modifications made as indicated by Modification Indices and Standard Residual Loadings



[15] see http://www.utexas.edu/its-archive/rc/tutorials/stat/amos/

5.4.2.3 Assessment of the Model Fit

Now, the model is assessed whether it has goodness in fit using the chi-square value. Thus, χ^2 = 1340.12 with degrees of freedom= 615 and p=0.000 (i.e. $p < .05$) indicating that chi-square value is significant. This is common amongst studies which have sample size greater than 250 (Hair et al. 2006). Therefore, it is recommended to check the fit indices (Schumacker and Lomax 2004). The common fit indices, GFI = 0.91, TLI = 0.93, CFI = 0.94, and RMSEA = 0.041 indicating acceptable fit of the model (Awad and Ragowsky 2008; Cyr et al. 2007; Chen and Barnes 2007; Chen 2007; Hair et al. 1998, 2006; Gefen and Straub 2004; Jarvenpaa et al. 2000).

5.4.2.4 Validation of the Measurement Model

In addition to the fit indices, it is also necessary to analyze the content validity, convergent validity, discriminant validity, and nomological validity of the measurement model.

Convergent Validity

There are many ways of evaluating the convergent validity using CFA. One of the ways is to check the regression weights for the observed variables. Table 5.5 shows most of the standardized loadings on each factor to be above |0.5| and the t-values to be significant. Therefore, convergent validity is ensured. Although some loadings are below |0.5|; they are retained on grounds of substantial theoretical importance (Chen 2007; Hair et al. 2006).

Another means of ensuring convergent validity is to see the construct reliability (i.e. Cronbach Alpha) scores for the variables after modification of the measurement model. Table

5.4 shows all the items to have values more than 0.60, and therefore again ensures convergent validity and internal consistency.

Table 5.4: Results of the Confirmatory Factor Analysis of the Measurement Model

			Unstandardized Estimates	Standardized Estimates	Standard Error	t-values	Construct Reliability[b]
TRUST							**0.79**
TRUST_1	<---	TRUST	1.000	.617[a]			
TRUST_2	<---	TRUST	1.127	.614	.071	15.891*	
TRUST_3	<---	TRUST	1.109	.473	.111	9.995*	
TRUST_4	<---	TRUST	1.031	.503	.100	10.341*	
TRUST_5	<---	TRUST	1.232	.667	.099	12.401*	
TRUST_6	<---	TRUST	.795	.421	.088	9.077*	
TRUST_7	<---	TRUST	1.132	.635	.086	13.173*	
TRUST_8	<---	TRUST	1.304	.637	.123	10.575*	
TRUST_9	<---	TRUST	1.443	.718	.131	11.052*	
PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS							**0.71**
SEC_TRST1	<---	SEC_TRST	1.000	.424[a]			
SEC_TRST3	<---	SEC_TRST	1.584	.850	.161	9.821*	
SEC_TRST4	<---	SEC_TRST	1.273	.581	.137	9.291*	
SEC_TRST5	<---	SEC_TRST	1.586	.630	.189	8.399*	
PERCEIVED PRODUCT INFORMATION QUALITY							**0.81**
PPIQ_1	<---	PPIQ	1.000	.757[a]			
PPIQ_2	<---	PPIQ	1.052	.802	.061	17.316*	
PPIQ_3	<---	PPIQ	.944	.731	.058	16.369*	
PPIQ_4	<---	PPIQ	.823	.686	.063	13.101*	
USER INTERFACE QUALITY							**0.78**
UIQ_1	<---	UIQ	1.000	.722[a]			
UIQ_2	<---	UIQ	1.133	.735	.072	15.736*	
UIQ_3	<---	UIQ	1.120	.696	.080	14.052*	
RELATIONAL BENEFIT							**0.60**
REL_BEN1	<---	REL_BEN	1.000	.618			
REL_BEN2	<---	REL_BEN	1.027	.530	.104	9.857*	
REL_BEN3	<---	REL_BEN	.632	.313	.124	5.087*	
REL_BEN4	<---	REL_BEN	.866	.453	.128	6.760*	
SOCIAL PRESENCE							**0.95**
SPIR_1	<---	SPIR	1.000	.793[a]			
SPIR_2	<---	SPIR	1.230	.999	.036	34.250*	
SPIR_3	<---	SPIR	1.218	.994	.036	34.119*	

IMPORTANCE OF ORGANIZATIONAL REPUTATION						**0.60**
ORG_REP1	<---	ORG_REP	1.000	.837[a]		
ORG_REP2	<---	ORG_REP	.794	.562	.077	10.336*
ORG_REP3	<---	ORG_REP	.642	.424	.074	8.712*
MARKET ORIENTATION						**0.70**
MKT_OR_2	<---	MKT_OR	1.000	.569[a]		
MKT_OR_3	<---	MKT_OR	1.081	.709	.084	12.902*
MKT_OR_4	<---	MKT_OR	.861	.547	.092	9.352*
MKT_OR_6	<---	MKT_OR	.582	.421	.077	7.537*
MKT_OR_7	<---	MKT_OR	.947	.612	.097	9.735*
RISK						**0.80**
RISK_1	<---	RISK	1.000	.831[a]		
RISK_2	<---	RISK	.901	.779	.064	14.104*
RISK_3	<---	RISK	.881	.767	.052	16.877*
RISK_5	<---	RISK	.649	.562	.054	11.945*

[a]The first regression weights for each latent variable is set to 1 to set the measurement scale for each latent variable; no standard errors or t-values are provided.

[b] Construct Reliability $= \frac{\sum(\text{Standard factor Loadings})^2}{\sum(\text{Standard factor Loadings})^2 + \sum(\text{Error variance for a construct})}$

* The path coefficients are significant (i.e. $p < 0.001$).

Discriminant Validity

To ensure discriminant validity, Hair et al. (2006, p. 781) mention that there should be unidimensionality in the measurement model. This is ensured by having the measuredt variables (indicators) to have only one underlying construct. Unidimensionality is affected by cross loadings, that is when measured variables (indicators) load on other constructs.. Additionally, there should be no between–construct error covariance, which is covariance between two error items indicating different constructs (Hair et al. 2006; Chen 2007). Significant between-error covariances suggest that the items associated with these error terms are more highly related than what the original measurement model predicts (Hair et al. 2006, p. 782). Indirectly it says that if significant cross loadings exist then there is lack of discriminant

validity. In this measurement model, none of these violations are observed, and therefore it can be further concluded that discriminant validity is ensured.

Another means to check for discriminant validity is to see whether any indicator is correlated with any other item with a value of more than 0.85 [Garson (n.d.); Kline 2005, 73]. As per appendix G showing the Pearson's Correlation matrix, none of the indicators have a correlation with any other item to be more than 0.85 except for one item. Low correlations (below 0.50) were found amongst most of the indicators. Therefore, this further ensures discriminant validity

Nomological Validity

Anderson and Gerbing (1988 cited in Chen 2004) notes that the measurement model is capable of revealing whether nomological validity is ensured or not if it shows adequate fit in data. As mentioned earlier in section 5.4.2.1, the overall measurement model provides good fit to the data and therefore, it can be concluded that nomological validity is proven.

5.4.2.5 Cross Validation of the Measurement Model

Often studies in social science are challenged whether results found in one group of sample is applicable or valid to other groups of samples. Groups are formed from an overall sample by dividing it up on a logically meaningful characteristic, which in most cases is an individual difference in characteristics, such as the respondents' gender (Hair et al. 2006, p. 819). In extreme cases, it may be required to take another sample of respondents and compare the statistics. But considering time and resources involved, in most cases, it is suitable to split the sample into a sufficient size and run SEM (Byrne 2001).

One of the ways available for researchers with limited resources is cross validation— an attempt to reproduce the results found in one sample using data from a different sample from the same population. In essence, cross validation is a means of second confirmation of a measurement theory that survived the initial test (Hair et al. 2006).

A thing to note about cross validation is that it does not provide a yes-or-no answer to how well the results are reproduced in an independent sample (Hair et al. 2006). Cross validation is more a matter of degree that can be determined by applying a series of progressively more rigorous test across samples (MacCallum et al. 1994; Bentler 1980). There are different tests ranging from less rigorous to more rigorous and different researchers use different validation techniques for the CFA model (Hair et al. 2006), which are discussed below:

In loose cross validation, the CFA is carried out with the same measurement structure used with the overall sample. Running the SEM program twice, once for the male data and once with the female data, the results of the CFA are as follows in table 5.5

Table 5.5: Results of the Confirmatory Factor Analysis on applying Factor Structure Equivalence

	Male	**Female**
χ^2	1061.7	1094.3
df	615	615
p	0.00	0.00
CFI	0.93	0.93
RMSEA	0.045	0.048

From the above table, the CFI and RMSEA values are quite similar amongst the groups and suggest a good fit between both male and female samples. The χ^2 value is significant for both the samples (i.e. $p < 0.05$), which is common amongst samples greater than 250 (Hair et al. 2006). No significant problems are visible for construct validity, and therefore, it can be said that the loose cross-validation criteria is met and the measurement model is valid among these two samples taken separately.

The next sequential rigorous test is the factor structure equivalence method. Here, the model is estimated in each group simultaneously rather than separately as in loose cross-validation (Hair et al. 2006). The χ^2 value is 2156 and *df* is 1230 ($p< 0.05$), which is the total of the χ^2 value of the two-group CFA (male and female) as obtained in the loose cross-validation method. Since the sample size is comparatively larger, it is necessary to rely on key relative fit indices like CFI, RMSEA, and PNFI (Hair et al. 2006, p. 821). The CFI is 0.93, the PNFI is 0.702, and the RMSEA for the two-group model is 0.033 with approximately 90% confidence interval of 0.30 to 0.035. These results are similar to the overall measurement model and suggest no difference in factor structure amongst samples, and suggest that the same factor structure is appropriate in either sample groups. Hence, factor structure equivalence is supported, and it can be interpreted that the model is valid across groups.

As another rigorous test, factor loading equivalence requires constraining the factor loadings in the measurement model so that the factor loadings in the two groups are equal (Hair et al. 2006, p. 829). Table 5.6 shows the fit statistics for the CFA model for both the male and female group after constraining the factor loadings. The χ^2 fit statistic for the factor loading equivalence model is 2185.3 with 1230 degrees of freedom. Subtracting the results of the factor loading equivalence from the factor structure equivalence model, the difference in chi-

square, $\Delta \chi^2$ is 29.3 and difference in degrees of freedom, Δdf is 30. The results show that the added constraints significantly worsen the χ^2 value. However, RMSEA decreases, CFI remains the same, and PNFI increases indicating support of the factor loading equivalence model in terms of the fit indices.

Table 5.6: Fit Statistics for the CFA Model for both the Male and Female Group

	χ^2	*df*	*p*	RMSEA	CFI	PNFI	$\Delta\chi^2$	Δdf	*p*
Individual Groups									
Male	1061.7	615	0.00	0.045	0.93	0.701			
Female	1094.3	615	0.00	0.048	0.93	0.703			
Factor Structure Equivalence	2156	1230	0.00	0.033	0.93	0.702			
Factor Loading Equivalence	2185.3	1260	0.00	0.032	0.93	0.717	29.3	30	$p<.001$
Factor Loading and interfactor Covariance Equivalence	2211.5	1261	0.00	0.033	0.924	0.716	26.2	1	$p<.001$

Since the factor loading equivalence model is supported, the next step involves a more rigorous approach, which involves checking the interfactor covariance equivalence approach. Here, interfactor covariance for latent constructs is equal across groups by enclosing constraints on the interfactor covariance of the latent factors. The results of the analysis show that the χ^2 fit statistic with 1261 degrees of freedom. The $\Delta \chi^2$ value is 29.3 and Δdf is 30. Other fit indices, CFI and PNFI show a decrease in value and the RMSEA increases showing that the interfactor covaricane equivalence model is not supported. Thus, it is concluded that

since the model lacks interfactor covariance equivalence, the cross validation extends to factor loading equivalence.

5.5 DEVELOPMENT OF THE STRUCTURAL MODEL

After conducting of the CFA to specify and validate the measurement model, the next step in the analysis is the development of the structural model specifying the set of relationships between the constructs. The structural model is used to test the hypothesis of this study. The structural model is developed based on the literature and takes the shape as shown in Fig. 5.3. This is the model as developed using AMOS 6.0.

5.5.1 Assessing the Structural Model Validity

On analysis of the structural model in figure 5.3, the χ^2 value is 1616.1 with 633 degrees of freedom with χ^2 value to be significant (i.e. $p < 0.05$). The structural model is recursive and cannot include more relationships between the constructs than can the CFA measurement model from which it is developed. And hence, the structural model has a higher χ^2 value than that obtained for the measurement indicating adequate validity. Other fit indices, such as the CFI is 0.93 and RMSEA is 0.047, which are the same as that of the fit indices for the measurement model in the CFA. The 90% confidence interval for the RMSEA is .0044 to .052, which is still within the range and indicates good fit. Additionally, GFI = 0.90 and TLI = 0.91, and further warrants to the validity of the structural model.

The next issue is to compare the loading estimates of the structural model with the CFA model. To ensure further validity of the structural model, the standardized loading estimates for the structural model (as shown in table 5.7) are compared with the CFA as in table 5.4. The loading

estimates are virtually unchanged from the CFA model with only few exceptions of four estimates having a maximum change of 0.1 and some fractional changes in other few loadings. Thus, technically as per Hair et al. (2006, p. 862), parameter stability among the measured item is ensured indicating no problem to stem from interpretational confounding, which supports the measurement model's validity.

Figure 5.3: Structural Model for testing the Hypothesis

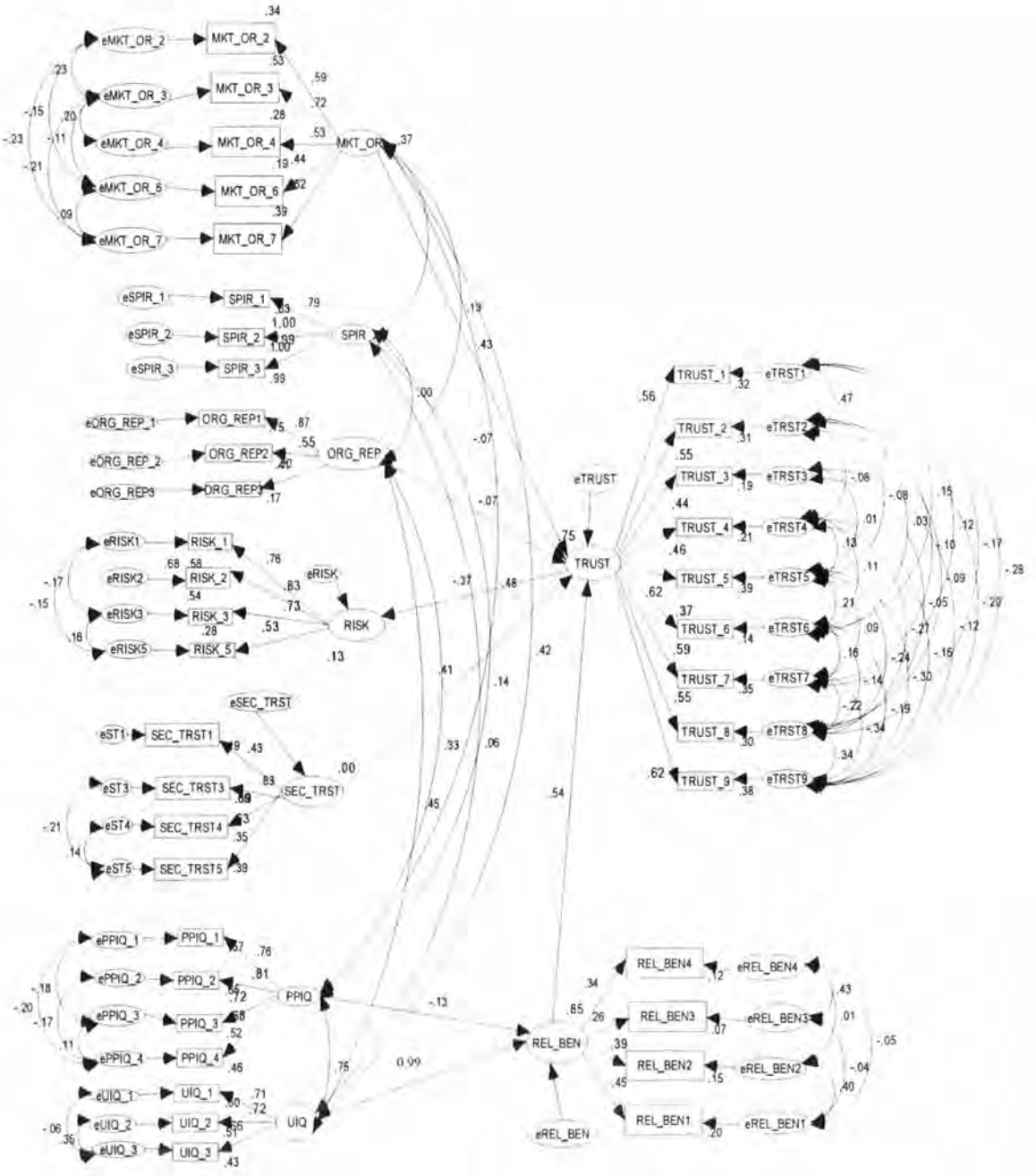


Table 5.7: Results of the Path Coefficients for Structural Model *(before respecification)*

			Unstandardized Estimates	Standardized Estimates	Standard Error	t-values
TRUST						
TRUST_1	<---	TRUST	1.000	.563[a]		
TRUST_2	<---	TRUST	1.118	.555	.080	14.014*
TRUST_3	<---	TRUST	1.132	.435	.129	8.787*
TRUST_4	<---	TRUST	1.052	.463	.115	9.108*
TRUST_5	<---	TRUST	1.251	.622	.115	10.898*
TRUST_6	<---	TRUST	.782	.372	.099	7.891*
TRUST_7	<---	TRUST	1.152	.591	.099	11.660*
TRUST_8	<---	TRUST	1.225	.546	.133	9.237*
TRUST_9	<---	TRUST	1.348	.617	.139	9.695*
PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS						
SEC_TRST1	<---	SEC_TRST	1.000	.434[a]		
SEC_TRST3	<---	SEC_TRST	1.518	.833	.167	9.070*
SEC_TRST4	<---	SEC_TRST	1.265	.590	.137	9.215*
SEC_TRST5	<---	SEC_TRST	1.545	.627	.207	7.460*
PERCEIVED PRODUCT INFORMATION QUALITY						
PPIQ_1	<---	PPIQ	1.000	.756[a]		
PPIQ_2	<---	PPIQ	1.059	.806	.062	17.121*
PPIQ_3	<---	PPIQ	.937	.724	.058	16.260*
PPIQ_4	<---	PPIQ	.816	.678	.064	12.812*
USER INTERFACE QUALITY						
UIQ_1	<---	UIQ	1.000	.708[a]		
UIQ_2	<---	UIQ	1.127	.717	.071	15.778*
UIQ_3	<---	UIQ	1.079	.658	.077	14.061*
RELATIONAL BENEFIT						
REL_BEN1	<---	REL_BEN	1.000	.450[a]		
REL_BEN2	<---	REL_BEN	1.039	.390	.112	9.298*
REL_BEN3	<---	REL_BEN	.714	.258	.137	5.204*
REL_BEN4	<---	REL_BEN	.890	.340	.139	6.390*
SOCIAL PRESENCE						
SPIR_1	<---	SPIR	1.000	.793[a]		
SPIR_2	<---	SPIR	1.230	.999	.036	34.260*
SPIR_3	<---	SPIR	1.218	.995	.036	34.146*
IMPORTANCE OF ORGANIZATIONAL REPUTATION						
ORG_REP1	<---	ORG_REP	1.000	.866[a]		
ORG_REP2	<---	ORG_REP	.746	.545	.083	9.010*
ORG_REP3	<---	ORG_REP	.602	.412	.076	7.893*

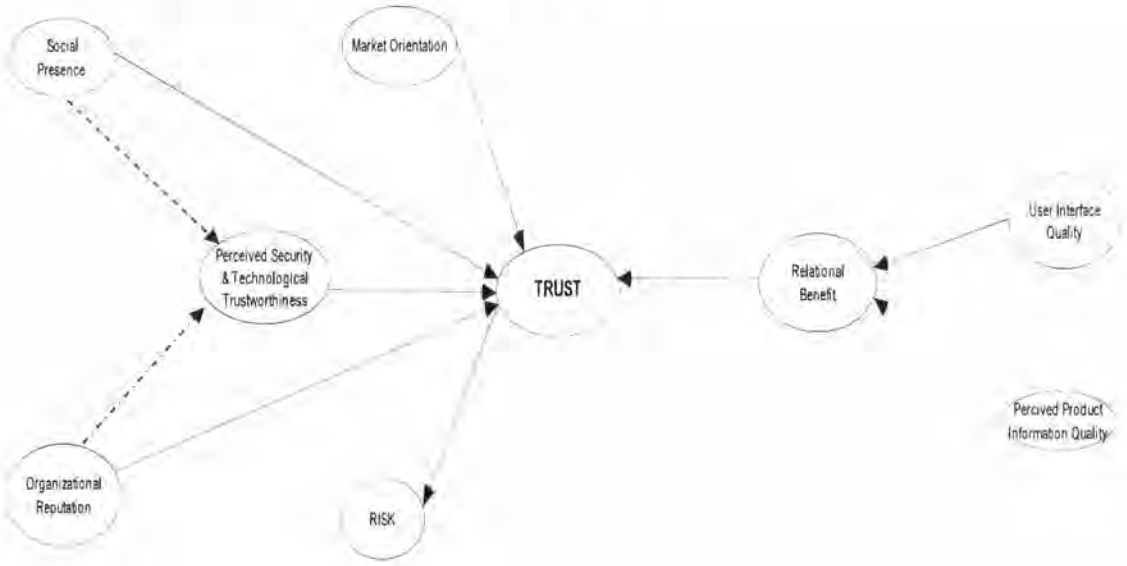
MARKET ORIENTATION						
MKT_OR_2	<---	MKT_OR	1.000	.586[a]		
MKT_OR_3	<---	MKT_OR	1.072	.725	.085	12.543*
MKT_OR_4	<---	MKT_OR	.808	.530	.092	8.805*
MKT_OR_6	<---	MKT_OR	.587	.438	.078	7.490*
MKT_OR_7	<---	MKT_OR	.938	.625	.098	9.578*
RISK						
RISK_1	<---	RISK	1.000	.762[a]		
RISK_2	<---	RISK	1.041	.827	.103	10.078*
RISK_3	<---	RISK	.918	.732	.057	16.213*
RISK_5	<---	RISK	.672	.531	.058	11.514*

[a]The first regression weights for each latent variable is set to 1 to set the measurement scale for each latent variable; no standard errors or t-values are provided.
* The path coefficients are significant (i.e. $p < 0.001$).

5.5.2 Modification of the Structural Model

On inspection of the output as in AMOS 6.0, the standardized residuals reveal some values are greater than |4.00|. The modification indices suggest a relationship between organizational reputation (ORG_REP) and perceived security and technological trustworthiness (SEC_TRST), and also a relationship between social presence (SPIR) and perceived security and technological trustworthiness (SEC_TRST) recommending arrows from ORG_REP to SEC_TRST and SPIR to SEC_TRST as illustrated more in detail in figure 5.4. This calls for a potential model re-specification which is common in social science research involving SEM (Hair et al. 2006; Byrne 2001). Moreover, this suggested re-specification does not conflict with existing theory and therefore, the modifications are made and further analysis is done to test the hypotheses proposed in this study.

Figure 5.4: Modifications to the Structural Model



- - - - - - - - - - ▶ Lines indicate proposed modifications through additions

Now, the structural model is tested with the new paths indicated by the modification indices as shown in figure 5.4. Results of the analysis (as shown in Table 5.9) reveal that structural co-efficients for ORG_REP → SEC_TRST and SPIR → SEC_TRST are significant whereas for ORG_REP → TRUST and SPIR → TRUST, the values are non-significant. Initially, when the respecifications were not made, these two path estimates, viz. ORG_REP → TRUST and SPIR → TRUST, proved to be insignificant (as shown in table 5.8).

Table 5.8: Standard Regression Co-efficients of the Structural Model *(before respecification)*

			Unstandardized Estimates	Standardized Estimates	S.E.	t-values
TRUST	<---	MKT_OR	.261	.426	.044	5.873*
TRUST	<---	REL_BEN	.488	.538	.073	6.688*
TRUST	<---	SEC_TRST	.360	.412	.048	7.562*
TRUST	<---	ORG_REP	-.036	-.070	.022	-1.669 (n.s.)
TRUST	<---	SPIR	-.032	-.069	.017	-1.899 (n.s.)
RISK	<---	TRUST	-.835	-.365	.117	-7.108*
REL_BEN	<---	UIQ	.906	1.014	.137	6.634*
REL_BEN	<---	PPIQ	-.085	-.130	.074	-1.146 (n.s.)

* t-values are significant (i.e. $p < 0.001$).
n.s.: t-values are non-significant (i.e. $p > 0.05$).

Table 5.9: Standard Regression Co-efficients of the Structural Model *(after addition of new paths between ORG_REP → SEC_TRST and SPIR → SEC_TRST)*

			Unstandardized Estimates	Standardized Estimates	S.E.	t-values
TRUST	<---	MKT_OR	.263	.417	.044	5.971*
TRUST	<---	REL_BEN	.483	.515	.074	6.517*
TRUST	<---	SEC_TRST	.363	.412	.049	7.463*
TRUST	<---	ORG_REP	-.056	-.088	.032	-1.756 (n.s.)
TRUST	<---	SPIR	-.040	-.083	.017	-2.305 (n.s.)
RISK	<---	TRUST	-.825	-.372	.112	-7.340*
SEC_TRST	<---	ORG_REP	.218	.303	.043	5.081*
SEC_TRST	<---	SPIR	.093	.172	.024	3.847*
REL_BEN	<---	UIQ	.904	1.011	.136	6.636*
REL_BEN	<---	PPIQ	-.081	-.124	.074	-1.093 (n.s.)

* t-values are significant (i.e. $p < 0.001$).
n.s.: t-values are non-significant (i.e. $p > 0.05$).

Now, the two paths, ORG_REP → TRUST and SPIR → TRUST are deleted, and once again the structural model is tested (Schumackar and Lomax 2004). Analysis shows that the respecified structural model has a χ^2 value of 1580.4 with 633 degrees of freedom. Other fit indices, the normed χ^2 = 2.50:1 (which is below the limits of 3:1 as per Hair et al. 2006), GFI = 0.90, TLI = 0.91, CFI = 0.92, and RMSEA = 0.046, indicating good fit (Schumacker and Lomax 2004; Kline 2005). The 90% confidence interval for the RMSEA is 0.043 to 0.049, which is still within the range, and indicates good fit. $\Delta\chi^2$ value between the revised SEM and CFA models is 240.28 with 18 degrees of freedom supporting for having the additional parameter indicating adequate validity. Other fit indices, CFI, RMSEA, GFI, and TLI have slight changes with increase in RMSEA and decrease in TLI, GFI and CFI but are within limits (as recommended by Chen 2007; Hair et al. 1998, 2006; Schumacker and Lomax 2004) and therefore, further indicates validity of the measurement model.

Now, the loading of the structural model as shown in table 5.10 are compared with that in table 5.4 (as had been done in case of the structural model before re-specification). Results show that the loading estimates are virtually unchanged from the CFA model with only few exceptions of four estimates having a maximum change of 0.1 and some fractional changes in other few loadings. Therefore, technically as per Hair et al. (2006, p. 862), once again the parameter stability among the measured items is ensured indicating no problem to stem from interpretational confounding, which supports the measurement model's validity.

Table 5.10: Results of the Path Coefficients for Structural Model (after respecification)

			Unstandardized Estimates	Standardized Estimates	Standard Error	t-values
TRUST						
TRUST_1	<---	TRUST	1.000	.578[a]		
TRUST_2	<---	TRUST	1.120	.572	.076	14.694*
TRUST_3	<---	TRUST	1.122	.445	.122	9.167*
TRUST_4	<---	TRUST	1.072	.487	.110	9.703*
TRUST_5	<---	TRUST	1.268	.645	.110	11.533*
TRUST_6	<---	TRUST	.807	.397	.095	8.483*
TRUST_7	<---	TRUST	1.160	.611	.094	12.290*
TRUST_8	<---	TRUST	1.255	.575	.128	9.797*
TRUST_9	<---	TRUST	1.398	.656	.135	10.332*
PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS						
SEC_TRST1	<---	SEC_TRST	1.000	.440[a]		
SEC_TRST3	<---	SEC_TRST	1.499	.834	.158	9.471*
SEC_TRST4	<---	SEC_TRST	1.246	.590	.133	9.369*
SEC_TRST5	<---	SEC_TRST	1.485	.612	.191	7.775*
PERCEIVED PRODUCT INFORMATION QUALITY						
PPIQ_1	<---	PPIQ	1.000	.756[a]		
PPIQ_2	<---	PPIQ	1.059	.806	.062	17.213*
PPIQ_3	<---	PPIQ	.938	.725	.058	16.286*
PPIQ_4	<---	PPIQ	.817	.679	.063	12.900*
USER INTERFACE QUALITY						
UIQ_1	<---	UIQ	1.000	.710[a]		
UIQ_2	<---	UIQ	1.132	.722	.072	15.737*
UIQ_3	<---	UIQ	1.089	.665	.078	14.040*
RELATIONAL BENEFIT						
REL_BEN1	<---	REL_BEN	1.000	.452[a]		
REL_BEN2	<---	REL_BEN	1.034	.390	.112	9.247*
REL_BEN3	<---	REL_BEN	.715	.259	.138	5.194*
REL_BEN4	<---	REL_BEN	.882	.338	.139	6.331*
SOCIAL PRESENCE						
SPIR_1	<---	SPIR	1.000	.793[a]		
SPIR_2	<---	SPIR	1.230	.999	.036	34.255*
SPIR_3	<---	SPIR	1.218	.994	.036	34.132*
IMPORTANCE OF ORGANIZATIONAL REPUTATION						
ORG_REP1	<---	ORG_REP	1.000	.712[a]		
ORG_REP2	<---	ORG_REP	1.091	.657	.104	10.462*
ORG_REP3	<---	ORG_REP	.662	.372	.087	7.610*

MARKET ORIENTATION						
MKT_OR_2	<---	MKT_OR	1.000	.615[a]		
MKT_OR_3	<---	MKT_OR	1.060	.751	.085	12.535*
MKT_OR_4	<---	MKT_OR	.748	.514	.087	8.575*
MKT_OR_6	<---	MKT_OR	.591	.463	.078	7.620*
MKT_OR_7	<---	MKT_OR	.930	.650	.096	9.664*
RISK						
RISK_1	<---	RISK	1.000	.760[a]		
RISK_2	<---	RISK	1.053	.833	.102	10.278*
RISK_3	<---	RISK	.919	.731	.056	16.342*
RISK_5	<---	RISK	.673	.531	.058	11.604*

[a]The first regression weights for each latent variable is set to 1 to set the measurement scale for each latent variable; no standard errors or t-values are provided.

* The path coefficients are significant (i.e. $p < 0.001$).

5.6 RESULTS OF TESTING OF THE HYPOTHESIS

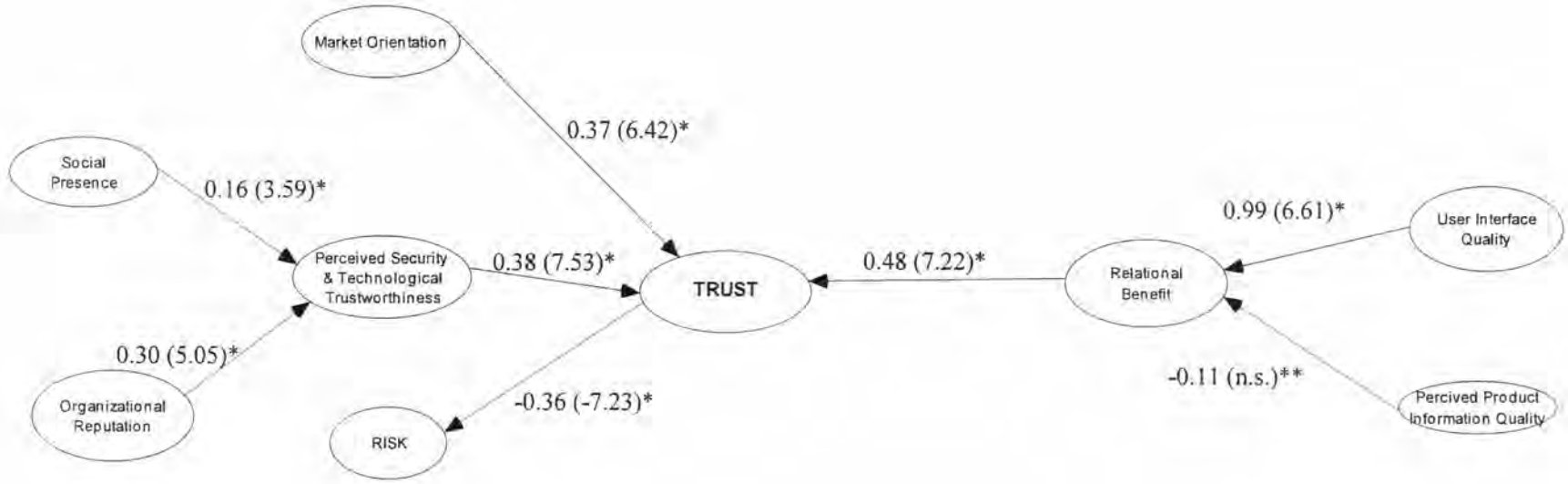
Now, the size, direction, and significance of the structural parameter estimates are examined to test the hypothesis of the study based on the findings of the structural model. Fig. 5.5 shows the standardized estimates of the structural model and table 5.11 displays the structural maximum likelihood estimates, standardized estimates, standard errors, and t-values indicating whether they are significant or not with an asterix at $p < 0.001$.

Table 5.11: Standard Regression Co-efficients of the Structural Model *(after respecification)*

			Unstandardized Estimates	Standardized Estimates	S.E.	t-values
TRUST	<---	MKT_OR	.223	.367	.035	6.421*
TRUST	<---	REL_BEN	.452	.480	.063	7.224*
TRUST	<---	SEC_TRST	.341	.380	.045	7.532*
RISK	<---	TRUST	-.800	-.364	.111	-7.234*
SEC_TRST	<---	ORG_REP	.216	.298	.043	5.046*
SEC_TRST	<---	SPIR	.083	.157	.023	3.587*
REL_BEN	<---	UIQ	.885	.989	.134	6.611*
REL_BEN	<---	PPIQ	-.069	-.106	.073	-.943 (n.s)

* t-values are significant (i.e. $p < 0.001$).
n.s. : t-values are significant (i.e. $p > 0.05$).

Figure 5.5: Structural Model showing the Standardized Estimates and t-values in bracket



*$p < 0.001$.
**n.s. $p > 0.05$

On the basis of the results presented in figure 5.5, the summary of the results of the hypothesis tested are provided in table 5.12.

Table 5.12: Results of the Testing of the Hypothesis

Hypothesis		Results
H1	Consumer trust in e-commerce is negatively related to perceived risk in e-commerce.	Supported
H2	Perceived security and technological trustworthiness is positively related to trust in e-commerce.	Supported
H3	Perceived market orientation is positively related to trust in e-commerce websites.	Supported
H4	Social presence is positively related to customers' trust in e-commerce websites.	Not Supported
H5	Relational benefit is positively related to trust in e-commerce.	Supported
H6	(a) User interface quality is positively related to relational benefit.	Supported
H6	(b) Perceived product and service information is positively related to relational benefit.	Not Supported
H7	Importance of website's reputation significantly influences customers' trust in e-commerce.	Not Supported

The results show that hypothesis H1 is supported indicating that as customer trust increases, perceived risk associated with e-commerce decreases. In terms of direct influence of the factors on trust, the findings show that hypothesis H2, H3, and H6, are supported. This means that Perceived Security and Technological Trustworthiness, Market Orientation, and Relational Benefit directly influence trust. Other factors, viz. social presence and importance of websites' reputation fail to show direct influence on trust leading to rejection of the hypothesis H4, and H7. The hypothesis, H6(a) was supported showing significant influence of User Interface Quality on Relational Benefit but the hypothesis, H6(b) was not supported

failing to show relationship between Perceived Product and Service Information Quality and Relational Benefit.

5.7 VARIANCES OF THE LATENT VARIABLES

The output of the structural model revealed the variances, i.e. the square of the multiple correlations, as shown in table 5.13. For trust, there is a 72 per cent of variance explained by market orientation, perceived security and technological trustworthiness, and relational benefit. The variance for perceived security and technological trustworthiness is 12 percent which is the influence of the factors, importance of websites' reputation and social presence. The remaining 88 per cent influence is from some other variables/factors. Perceived risk has 13 per cent variance arising from influence of trust explaining the remaining 87 per cent from other sources. Finally, the variance for relational benefit is 83 per cent which is explained by influence of user interface quality.

Table 5.13: Variances of the Latent Constructs

Latent Variable	Variances (R^2)
Trust	0.72
Perceived Security and Technological Trustworthiness	0.12
Relational Benefit	0.83
Perceived Risk	0.13

5.8 DIRECT, INDIRECT AND TOTAL EFFECTS IN THE STRUCTURAL MODEL:

The standardized direct, indirect and total effects demonstrated by the structural model are demonstrated in table 5.14. The highest direct effect in the structural model was the influence of User Interface Quality (UIQ) on Relational Benefit (REL_BEN) which was 0.989 and is the path estimates between these two variables. The indirect effect that was the largest was the influence of User Interface Quality (UIQ) on trust (TRUST) amounting to 0.475. This amount is calculated by multiplying path estimates for the relationship between User Interface Quality (UIQ) and Relational Benefit (REL_BEN) and the path estimates between Relational Benefit (REL_BEN) and trust (TRUST). The strongest standardized total effect was the influence of User Interface Quality (UIQ) on Relational Benefit (REL_BEN) which was 0.977, and was derived by adding the standardized direct and indirect effects.

Table 5.14: Direct, Indirect and Total Effects demonstrated in the Structural Model

	MKT_OR	ORG_REP	SPIR	UIQ	PPIQ	REL_BEN	SEC_TRST	TRUST	RISK
Standardized Direct Effects									
REL_BEN	.000	.000	.000	.989	-.106	.000	.000	.000	.000
SEC_TRST	.000	.298	.157	.000	.000	.000	.000	.000	.000
TRUST	.367	.000	.000	.000	.000	.480	.380	.000	.000
RISK	.000	.000	.000	.000	.000	.000	.000	-.364	.000
Standardized Indirect Effects									
REL_BEN	.000	.000	.000	.000	.000	.000	.000	.000	.000
SEC_TRST	.000	.000	.000	.000	.000	.000	.000	.000	.000
TRUST	.000	.114	.060	.475	-.051	.000	.000	.000	.000
RISK	-.134	-.041	-.022	-.173	.018	-.175	-.138	.000	.000
Standardized Total Effects									
REL_BEN	.000	.000	.000	.989	-.106	.000	.000	.000	.000
SEC_TRST	.000	.298	.157	.000	.000	.000	.000	.000	.000
TRUST	.367	.114	.060	.475	-.051	.480	.380	.000	.000
RISK	-.134	-.041	-.022	-.173	.018	-.175	-.138	-.364	.000

5.9 MULTI-GROUP ANALYSIS OF THE STRUCTURAL MODEL

In this part of the analysis, the study will try to find out whether there are any reasonable differences in the parameter estimates based on the differences of web experience of the respondents to test the two hypotheses, H8 (a) and H8 (b). Therefore, multi-group analysis of the structural model is used which focuses on similarities and differences between structural parameters indicating differences in relationships between groups (Hair et al. 2006).

5.9.1 Multi-group Analysis for Testing the Hypothesis H8(a) and H8(b) Explaining the Moderating Effect of Web Experience on the Effect of Trust on Perceived Risk and the Effect of SEC_TRST on Trust

In this study, web experience is measured by two items, number of years of use of internet (yrs_int_use) and hours of use of internet per week (hrs_per_week) derived from the study of Corbitt et al. (2003). In SEM, to compare groups to have different effects on parameter estimates, it is necessary that multi-group analysis be done with samples which are more or less similar in size (Awad and Ragowsky 2008; Schumacker and Lomax 2004; Byrne 2001). Appendix C shows the frequency distribution for number of years of use of internet (yrs_int_use). The data show that 90.5 per cent of the respondents have used the internet for more than 5 years and the remaining respondents have a usage of less than 5 years. Hence, a proportionate division of the sample based on the number of years of usage of internet is not possible for web experience.

The internet evolved in the late 90s and the e-commerce came into full force by the early 2000s[16]. When Corbitt et al. conducted their study in 2003, the number of years of use of internet was a good measure since e-commerce was in its initial stage. By the time this

[16] See www.InternetWorldStats.com [Accessed: 15th October 2008].

research is conducted, around 7-8 years have passed and therefore it is quite natural that 90 per cent of the respondents show that they have more than 5 years of usage of the internet. As a result, this measure cannot be used in the multi-group analysis.

Alternatively, the other measure for web experience used in this study is the 'number of hours of usage of internet per week' (hrs_per_week). The frequency distribution shows that 45.7 per cent of the respondents (321) have more than 20 hours of usage of internet per week and 54.3 per cent of the respondents (382) have less than 20 hours of usage of the internet per week. In essence this item indicates that how much exposure the respondents have in terms of using the internet. This is another indicator for web experience (Pavlou 2003; Corbitt et al. 2003).

Previous researchers state that exposure or frequency of use of a technology, media or an object is a means of gaining knowledge about that thing which is then processed cognitively in the minds of the user (So et al. 2005). When a person has high exposure or frequency of usage of this media of the internet and the technology of e-commerce, he/she is educated in gaining more knowledge about that media and technology (Schiffman et al. 2001; Rogers 1995 *in:* So et al. 2005; Dabholkar 1994). Thus, as per these arguments it can be stated that respondents who have more than 20 hours of use of the internet will become more aware of the cues and hypes of the internet. Therefore, it can be assumed that respondents with more than 20 hours of usage of the internet can be placed within the band of 'high web users' and those with less than 20 hours of usage of the internet can be termed as 'low web users' of the internet. Hence, to make the analysis simpler, hours of use of internet per week (hrs_per_week), is used as an indicator for web experience in this research.

When the model is tested across the two samples— high web users and low web users, to prove that the path estimates in one data set (i.e. high web users) is significantly different from that in the other data set (i.e. low web users), there must be lack of metric invariance. Metric invariance is achieved when a measurement theory condition in which the measures forming a measurement/structural model have the same meaning and are used in the same way by different groups of respondents (Hair et al. 2006, p. 823). Full metric variance occurs when constraining the model to have loading estimates to be equal does not significantly lower the fit.

Now, to test for lack of metric invariance, these two groups of samples are tested in an unconstrained structural model initially. The analysis is conducted using the same structural model with the loadings allowed to be estimated freely in all the groups but simultaneously rather than separately (Hair et al. 2006). Before, testing for the two samples in an unconstrained structural model, it is necessary that model is tested with each of these samples individually and find out whether the fit indices indicate good fit (Hair et al. 2006; Byrne 2001). The findings in table 5.15 indicate that the model holds good fit tested individually in each of these datasets. Next, the model is tested by constraining the measurement weights and factor structure weights amongst the two groups in the model (Schumacker and Lomax 2004). The results are shown in table 5.15.

The findings of the analysis reveal that the χ^2 is significant when the model is tested with having the parameters unconstrained as well as when constraining both the measurement weight and factor structural weights that is $p < 0.05$. Hair et al. (2006, p. 821) recommends that when sample sizes are too large, it is necessary to look into the changes in the values of the fit indices of CFI, RMSEA, and PNFI. The CFI and RMSEA show no substantial changes

and the PNFI increases indicating that the model does not get worsen as the constraints are introduced. Hence, it can be concluded that the differences in parameter estimates between high web users and low web users are not significant.

Table 5.15: Fit Indices Derived in Multi-group Analysis of High and Low Web User Samples Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Individual Groups						
High User	1208.2	633	0.900	0.053	0.700	
Low User	1219.3	633	0.913	0.049	0.715	
Unconstrained Model	2427.6	1266	0.906	0.036	0.705	
Measurement Weights Constrained	2460.3	1296	0.906	0.036	0.720	32.7 (30)
Factor Structural Weights Constrained	2461.4	1304	0.906	0.036	0.724	39.2 (38)

5.9.2 Results of Testing of the Hypothesis H8 (a) and H8 (b)

Based on the findings of the analysis, it is observed that there is no substantial difference between the two path estimates for the two groups of users. Hence, H8 (a) and H8 (b) are not supported that is, there is no difference amongst high web users and low web users in terms of the influence of Perceived Security and Technological Trustworthiness (SEC_TRST) on trust in e-commerce as well as between the relationship between trust and perceived risk. The discussion and interpretations of the results are illustrated in detail in chapter 6.

5.10 ADDITIONAL ANALYSIS: DIFFERENCES IN GENDER, AGE, AND INCOME ON FACTORS AFFECTING TRUST IN E-COMMERCE

5.10.1 Gender

Previous researchers have found substantial difference between man and woman in interacting with e-commerce (Garbarino and Strahilevitz 2004; Rodgers and Harris 2003). Previous studies have showed that women spend less time on the internet and are less interested with the web (Rodgers and Harris 2003; Allen 2001; Hoffman et al. 2000). Men and women also vary in their buying attitudes— men being more pragmatic and women being emotive (Dittmar et al. 2004). Woman see shopping as a social activity compared to man and therefore are less likely to shop online due to lack of social interaction that is common in traditional stores (Slyke et al. 2002; Choudhury et al. 2000). Rodgers and Harris (2003) note that websites may lack perceived emotional benefits which are a trigger to women of not more shopping online compared to men. Venkatesh et al. (2000) also found that performance expectancy is stronger in men and effort expectancy greater in women. For analysing the purpose of using the internet, Sheehan (1999) and Smith and Whitlark (2001) further found that men and women have different concerns about online shopping. In another different context, Kim (2003) found that there are differences amongst male and female respondents in how they perceive the influence of the different factors affecting the dimensions of trust. Based on all these arguments, there poses demands to investigate whether there are any substantial differences in the parameter estimates of the model as cited in figure 5.5 which shows the factors affecting customers' trust in e-commerce in this study. In other words, it needs investigation to see whether path estimates vary amongst these two groups of respondents (male and female) for the structural model proposed in figure 5.5.

Multi-group analysis is again used to check the influence of gender on consumer trust in e-commerce. Multi-group analysis enables to test for lack of metric invariance as have been stated earlier. Now, to test for lack of metric invariance, these two groups of samples are tested in an unconstrained structural model initially. Again, the actual sample is split into two groups— male and female. The analysis is again conducted using the same structural model with the loadings allowed to be estimated freely in all the two groups but simultaneously rather than separately. Before testing for the two samples simultaneously in an unconstrained structural model, the model needs to be tested separately across these two groups of respondents. Table 5.16 shows that the fit indices indicate good fit (Hair et al. 2006; Byrne 2001). Next, the model is tested by constraining the measurement weights and factor structure weights amongst the two groups in the model (Schumacker and Lomax 2004). The results are also shown in table 5.16.

Table 5.16: Fit Indices Derived in Multi-group Analysis of Male and Female Respondents Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Individual Groups						
Male	1176.0	633	0.911	0.049	0.707	
Female	1239.1	633	0.905	0.053	0.706	
Unconstrained Model	2415.1	1266	0.908	0.036	0.707	
Measurement Weights Constrained	2449.8	1296	0.908	0.036	0.721	32.7 (30)
Factor Structural Weights Constrained	2466.8	1304	0.907	0.036	0.725	39.2 (38)

The findings of the analysis reveal that the χ^2 is significant when the model is tested with having the parameters unconstrained as well as when constraining both the measurement

weight and factor structural weights that is $p < 0.05$. The other fit indices, CFI and RMSEA show no substantial changes and the PNFI increases indicating that the model does not get worsen as the constraints are introduced. Hence, it can be concluded that the differences in parameter estimates between male and female respondents are not significant.

5.10.2 Age

Age has been a critical issue in examining the factors affecting trust in e-commerce especially in studies involving student populations (Cyr et al. 2007; Corbitt et al. 2003; Ribbink et al. 2004; Gefen and Straub 2003, 2004; McKnight et al. 2002a; Jarvenpaa et al. 2000). In these studies, the researchers have posed that their studies may lack generalizability because the students belonged to younger age groups and may not represent the actual age group population of the customers in e-commerce. Moreover, students who belong to a certain age group, are more computer literate and use the internet more often then other groups of people. Based on all these arguments, it provides impetus to this researcher to investigate whether there are any differences in the parameter estimates in the model developed in this study (as shown in figure 5.5) across different age groups.

Multi-group analysis is again used in this analysis. The age group was determined in this study by looking into the responses made in the questionnaire by the respondents. Respondents were required to answer whether they belonged to any of the following age groups: less than 15 years, between 16-25 years, between 26-35 years, between 36-50 years, or above 50 years. The frequency distribution (as shown in appendix C) demonstrates that there is no equal distribution of respondents in any of these five age groups. Moreover, no respondents were found to be below the age of 15. Most of the respondents clustered between

the age group of 16 to 50. To test for multi-group analysis, it is required that the overall sample be divided into groups meaningful to conduct the analysis that is, the size of the groups of samples should be more or less similar. It is observed that 37.6 percent of the respondents (264) are below 25 years, 30.9 per cent of the respondents (217) are between 26 to 35 years, and 31.6 per cent of the respondents (222) are above the age of 36 years (including the age group above 50 years). Thus, these three age groups make up these sub-samples for multi-group analysis.

Now, these age groups are tested in the same structural model with the loadings allowed to be estimated freely in all the groups but simultaneously rather than separately as have been done earlier above. As stated above, the actual sample is split into three age groups: respondents below 25 years of age, respondents between 26-35 years of age, and respondents above the age of 36 years. As stated earlier, before testing for the three samples in an unconstrained structural model, it is also necessary that the model be tested with each of these samples individually to find out whether the fit indices indicate good fit (Hair et al. 2006; Byrne 2001). The findings in table 5.17 indicate that the model holds good fit tested individually in each of these datasets. Next, the model is tested by constraining the measurement weights and factor structure weights across the groups in the model (Schumacker and Lomax 2004). The results are shown again in table 5.17.

Table 5.17: Fit Indices Derived in Multi-group Analysis of Samples Consisting of Respondents Below 25 years, Respondents Between 26-35 years of Age, and Respondents Above the Age of 36 years Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Individual Groups						
Respondent below 25 years	1049.6	633	0.917	0.050	0.700	
Respondents between the age of 26-35 years	984.2	633	0.910	0.051	0.674	
Respondents above the age of 36 years	1019.3	633	0.900	0.057	0.645	
Unconstrained Model	3125.3	1899	0.903	0.030	0.675	
Measurement Weights Constrained	3207.4	1959	0.902	0.030	0.692	82.1 (60)
Factor Structural Weights Constrained	3239.2	1975	0.900	0.030	0.696	113.9 (76)

The findings of the analysis reveal that the χ^2 is significant (that is $p < 0.05$) when the model is tested with having the parameters unconstrained as well as when constraining both the measurement weight and factor structural weights. The other fit indices, CFI decreases slightly as the model is constrained; RMSEA remains the same; and the PNFI decreases also. It is not possible to understand whether any of the equality constraints do not hold good across the three age groups. Therefore, to find out what equality constraints do not hold across these three models, it is now necessary for the model to be estimated again across two age groups rather than the three age groups (Byrne 2001). In the first instance, the analysis is conducted with the age groups consisting of respondents below the age of 25 years and respondents within the age of 26 to 35 years; in second stage, the analysis is conducted

between respondents below 25 years and respondents above 36 years; and finally the analysis is done between respondents within the age of 36-35 years ad respondents above the age of 36 years. The findings of the result are provided in tables 5.18, 5.19, and 5.20

Table 5.18: Fit Indices Derived in Multi-group Analysis of Samples Consisting of Respondents Blow 25 years and Respondents Between 26-35 Years of Age Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Unconstrained Model	2033.9	1266	0.914	0.036	0.688	
Measurement Weights Constrained	2079.9	1296	0.913	0.036	0.700	46
Factor Structural Weights Constrained	2096.1	1304	0.912	0.036	0.703	62.2

The findings in table 5.18 show that the χ^2 is significant (that is $p < 0.05$) when the model is tested with having the parameters unconstrained as well as when constraining the measurement weights and the factor structural weights. The other fit indices, CFI and RMSEA show no substantial changes and the PNFI increases indicating that the model does not get worsen as the constraints are introduced. Hence, it can be concluded that the differences in parameter estimates between respondents below 25 years and respondents between 26-35 years of age are not significant.

Table 5.19: Fit Indices Derived in Multi-group Analysis of Samples Consisting of Respondents Below 25 years and Respondents Above the Age of 36 years Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Unconstrained Model	2141.0	1266	0.900	0.038	0.676	
Measurement Weights Constrained	2174.6	1296	0.900	0.037	0.689	33.6
Factor Structural Weights Constrained	2195.0	1304	0.900	0.038	0.692	54

The findings in table 5.19 show that the χ^2 is significant (that is $p < 0.05$) when the model is tested with having the parameters unconstrained as well as when constraining the measurement weights and the factor structural weights. The other fit indices, CFI and RMSEA show no substantial changes and the PNFI increases indicating that the model does not get worsen as the constraints are introduced. Hence, it can be concluded that the differences in parameter estimates between respondents below 25 years and respondents above the age of 36 years of age are not significant.

Table 5.20: Fit Indices derived in Multi-group Analysis of Samples Consisting of Respondents Between 26-35 years of age and Respondents Above the Age of 36 Years Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Unconstrained Model	2075.5	1266	0.894	0.038	0.660	
Measurement Weights Constrained	2120.3	1296	0.892	0.038	0.671	44.8
Factor Structural Weights Constrained	2130.8	1304	0.892	0.038	0.675	55.3

The findings in table 5.20 show that the χ^2 is significant (that is $p < 0.05$) when the model is tested with having the parameters unconstrained as well as when constraining the measurement weights and the factor structural weights. The other fit indices, CFI and RMSEA show no substantial changes and the PNFI increases indicating that the model does not get worsen as the constraints are introduced. Hence, it can be concluded that the differences in parameter estimates between respondents between 26-35 years of age and respondents above the age of 36 years are not significant.

5.10.3 Income

In previous studies (Awad and Ragowsky 2008; Cyr et al. 2007), no attempt was made to find out whether the parameter estimates of the factors affecting trust in e-commerce varied across populations with varying income. In this study, since data was collected on the amount of

annual income of the respondents, therefore multi-group analysis is again used to see whether the parameter estimates for factors affecting trust vary across groups with varying income.

As per appendix C, 54.5 per cent of the respondents have an annual income of more than £20,000. As stated earlier, in multi-group data analysis there requires groups of samples with even size. As per appendix C, 14.4 per cent respondents (101) have an less than £5,000, 8 per cent of respondents (56) have an income between £5,000 to £9,999, 11.4 per cent of respondents (80) have an income between £10,000 to £14,999, 11.8 per cent of respondents (83) have an income between £15,000 to £19,999, and 54.5 per cent of respondents (383) have an income above £20,000. Conducting multi-group analysis with all these groups of samples is not possible. Therefore, for convenience, the sample is divided into groups consisting of respondents with an income above £20,000 and those with an income less than £20,000. Multi-group data analysis is again used in the same structural model with the loadings allowed to be estimated freely in all the groups but simultaneously rather than separately as have been done earlier above. It is also necessary that the model be tested with each of these samples individually to find out whether the fit indices indicate good fit (Hair et al. 2006; Byrne 2001). The findings are shown in table 5.21 indicate that the model holds good fit tested individually in each of these datasets. Next, the model is tested by constraining the measurement weights and factor structure weights amongst the two groups in the model (Schumacker and Lomax 2004).

Table 5.21: Fit Indices derived in Multi-group Analysis of Respondents with Income Above £20,000 and Respondents with Income Less than £20,000 Using an Unconstrained Model and a Model Constraining Measurement Weights and Factor Structural Weights

	χ^2	df	CFI	RMSEA	PNFI	$\Delta\chi^2$
Individual Groups						
Respondents with income above £20,000	1163.1	633	0.921	0.047	0.721	
Respondents with income below £20,000	1157.2	633	0.906	0.051	0.700	
Unconstrained Model	2320.3	1266	0.914	0.034	0.710	
Measurement Weights Constrained	2366.0	1296	0.913	0.034	0.724	32.7 (30)
Factor Structural Weights Constrained	2379.4	1304	0.912	0.034	0.728	39.2 (38)

The χ^2 is significant, that is $p < 0.05$ for both the cases when the model is tested with having the parameters unconstrained as well as when constraining both the measurement weight and factor structural weights. The other fit indices, CFI decreases slightly, RMSEA remains the same, and the PNFI increases indicating that the model does not get worsen as the constraints are introduced. Hence, it can be concluded that there is no difference in the parameter estimates of the factors affecting trust across samples with differences in income.

In conclusion, it can be said that the findings of these analysis (as from this section 5.10) show that the model (as in figure 5.5) holds well across groups with varying age, gender, and income. Detail of these results is illustrated in chapter 6.

5.11 SUMMARY

In this chapter, the data is analyzed to test the hypotheses. The data is first subject to descriptive statistics to reveal the mean, median, and mode of the responses. Next, the preliminary tests were conducted to see whether the data is suitable for further multivariate data analysis. While doing the preliminary tests, it was revealed that some outliers are present but they were retained as the responses constitute to a segment of the population (Hair et al. 2006). In conclusion, the preliminary tests did not reveal any specific weaknesses which prevent the data for undergoing the multivariate data analysis.

A four step approach was adopted in this study to conduct the structural equation modelling, which is the multivariate data analysis technique used in this study (Mulaik and Millsap 2000). As first step in the analysis, the exploratory factor analysis (EFA) was conducted. The findings revealed that some items had cross loading problems but they were retained as EFA does not necessarily reveal accurate results due to the mechanics of the method (Mulaik 1987). Therefore, to overcome this limitation, confirmatory factor analysis (CFA) was conducted in the next step of the analysis.

While conducting CFA, the items, MKT_OR1, RISK4, SEC_TRST2, and SEC_TRST6 were dropped as have been indicated in the modification indices in the AMOS 6.0 output. The CFA later tested the measurement model and brought in the necessary modifications as per the Modification Index in the AMOS 6.0 output. The measurement model showed good fit and thereby framed the foundation to develop the structural model in the next step.

In the third step of the analysis, the structural model was developed from the measurement model. The model was subject to some modification indicated by the Modification Index in

AMOS 6.0. This included deletion of the paths between 'social presence' and 'trust' and between 'importance of websites' reputation' and 'trust'. Additionally, the modification index also recommended for paths between 'social presence'' and 'perceived security and technological trustworthiness and between 'importance of websites' reputation' and 'perceived security and technological trustworthiness'. The findings of the analysis revealed that the structural model and goodness of fit. Therefore, in the next step, the structural model was used to test the hypotheses of the study.

The results of the testing show that five (5) out ten (10) hypotheses were supported. Additional analysis was conducted to check whether the parameter estimates in the model (as shown in figure 5.5) varied across groups of samples with varying gender, age, and income. The results show that the model held good across all these sample groups.

CHAPTER 6:

DISCUSSIONS

6.1 INTRODUCTION

It may be recalled that a key aim of this study was to develop a comprehensive model to show the factors that affect trust in e-commerce and explore the inter-relationships amongst these factors. This objective was set in the backdrop of the failures of previous researches to provide a comprehensive list of factors to affect trust. Some of the past studies also focused on initial trust formation and explored the stages of trust formation (Chen and Barnes 2007; Kim 2003; McKnight et al. 2002a; McKnight et al. 1998). Also, some of the results of the previous studies had problems due to use of small sample size (Ha 2004; Corbitt et al. 2003) and student populations (e.g. Jarvenpaa et al. 2000). Additionally, some studies (e.g. Kim 2003; Corbitt et al. 2003) used inappropriate analytical techniques making the results difficult to generalize in other research settings.

This present study, being aware of all these limitations, has focused on overall trust and identified from a review of literature as well as the data analysis as many as eight factors to affect trust. Advanced multivariate analysis techniques, like Structural Equation Modelling (SEM), was used to show the relationship and inter-relationships of the factors affecting trust. In this connection, a number of the hypotheses were tested as shown in chapter 5 and the following section goes on elaborating the findings of the study.

6.2 OVERVIEW OF THE RESULTS

The discussion of each of the hypotheses proceeds in the manner where firstly the proposition is placed, empirical evidence are provided and compared with existing literature. Thereafter, the methodological limitations of the previous studies are explained along with the steps undertaken in this research to overcome them. The discussion ends with the illustration of the practical implications of the testing of the hypotheses.

6.2.1 H1: Consumer Trust in E-commerce is Negatively Related to Perceived Risk in E-commerce

It has been reported in chapter 5 that the standard loading for the path between trust and perceived risk is - 0.36 ($p < 0.001$). Before re-specification, the standard loading was – 0.37 ($p < 0.001$). No major changes in path estimates are observed before and after re-specification indicating that modification to model does not have any influence on the relationship between trust and risk (Hair et al. 2006). Therefore, the hypothesis was accepted.

The results imply that, as customers' trust in e-commerce websites increases, their perceived risk associated with online transactions decreases, indicating an inverse relationship between the variables. Similar findings of trust affecting perceived risk have also been reported in other researches (Slyke et al. 2006; Pavlou 2003; Jarvenpaa et al. 2000). However, in the present study, the magnitude of the inverse relationship between trust and risk is lower compared to that observed in a previous study of Jarvenpaa et al. (2000). Their study (Jarvenpaa et al. 2000) used mostly students from the computer science discipline. Students with knowledge about computing are likely to have more knowledge about the loopholes of online businesses and the internet, and therefore will demonstrate more perceived risk compared to other category of users. The present study did not restrict the sample to include

only students but made an attempt to include respondents from all walks of life. Therefore, perceptions drawn from such respondents are likely to reflect varying knowledge of the internet users unlike respondents with expertise knowledge of computing as in case of Jarvenpaa et al.'s (2000) study. Moreover, since Jarvenpaa et al.'s (2000) study was conducted 6-7 years before, it may be suspected that at that time security issues in e-commerce were not that developed and there were various cases of breach of online privacy and security, which made users reluctant to using the internet for shopping. In this study, the low magnitude of the relationship may be due to the fact that at the present time, the internet security in e-commerce is fairly well developed.

In another study (Slyke et al. 2006), the magnitude of the relationship between trust and perceived risk was found to have depended on the difference between well-known websites and less well-known websites. In well-known websites, the magnitude of the relationship is less compared to higher magnitude in less well-known websites. Slyke et al. (2006) established a control setting using pre-selected websites. But in this study, such control is not established and therefore, it is not possible to see whether perceived risks vary across well-known and less well-known websites. This is possibly a limitation of this study and has been discussed in detail in chapter 7.

In another study by Corbitt et al. (2003), the relationship between trust and perceived risk was found to be statistically non-significant. These researchers (Corbitt et al. 2003) attributed their results to the use of limited sample size which also contradicts Pavlou's (2003) study. Pavlou (2003) also used a small sample size, but the relationship between trust and perceived risk was observed to be of a high magnitude. Pavlou (2003) used Partial Least Square (PLS) Methods of the SEM technique which is suitable for explaining variances in a structural

model. However, PLS method is not suitable for ensuring unidimensionality which is necessary for explaining relationships in complex models (Chin 1998). In this study, a covariance based SEM technique is used. This is suitable for complex relationships involving larger variables where the overall fit of the entire observed covariance matrix is examined within the hypothesized covariance model (Gefen et al. 2000).

Furthermore, in a study by Chen (2004), the relationship between trust and risk was also found to be negative, but the study (Chen 2004) indicated that perceived risk served as a factor to influence online trust. This contradicts the present study findings as well as those of other researchers like Slyke et al. (2006), Pavlou (2003), and Jarvenpaa et al. (2000). The findings in this present study indicate that the various factors affecting trust leads to building trust in the minds of the customers which then leads to reduced risk perceptions. It means that perceived risk is not a factor to influence online trust but is an outcome of the results of trusting an e-commerce website.

Another aspect about previous studies (Slyke et al. 2006; Pavlou 2003; Jarvenpaa et al. 2000) is that perceived risk serves as a mediating role to explain the indirect effect of trust on willingness to purchase/purchase intentions. In this study, reduced perceived risk is found to be the outcome of the direct relationships of other factors influencing trust. This means that the factors that affect trust have an indirect effect on perceived risk with online trust, which plays the mediating role.

While explaining the relationship between trust and perceived risk, this study also explored the dimensions to measure trust in e-commerce. This is discussed in detail in the next section.

6.2.1.1 Dimensions to Measure Trust

In this study, four dimensions for measuring trust have been used. They are ability, benevolence, integrity and predictability. However, previous studies (Chen and Barnes 2007; McKnight and Chervany 2002; Mayer and Davis 1999; Gefen and Silver 1999; Doney and Cannon 1997; Mayer et al. 1995; Ganesan 1994; Friedland 1990) showed that there were three dimensions, viz. ability, benevolence, and integrity, to measure trust in online transactions. There were disagreements amongst these researchers on different aspects of these dimensions to measure trust. Therefore, McKnight et al. (2002a) recommended for an additional dimension for measuring trust. Other researchers (Choudhury and Tsinopoulos 2007; Gefen and Straub 2004) indicated that another fourth dimension, namely predictability, should be introduced. This study by accepting these four dimensions, viz. ability, benevolence, integrity and predictability have gone for overall analysis of the measurement model in chapter 5. The overall measurement model had good fit according to the relevant fit indices (GFI = 0.91, TLI = 0.93, CFI = 0.94, and RMSEA = 0.041), which is within the limits as prescribed by Hair et al. (2006) and Schumacker and Lomax (2004). The findings imply that trust in online transaction is a multi-dimensional construct. It is a set of specific beliefs (Gefen and Straub 2004). This set of beliefs is directed towards the trusted parties (e-commerce websites) that they will behave in the way that is desired from them and while doing so will demonstrate to the trustor (i.e. customers) what is expected from them. In relating desired behaviours with expected outcomes, these beliefs, viz. ability, benevolence, integrity, and predictability, must be present as well as be demonstrated by the trusted party for the trustor to convey trust on the trusted parties, that is e-commerce websites.

Gefen and Straub's (2004) study used student populations and the researchers themselves posed doubts whether the dimensions will be applicable in other studies. In this study, the

measurement model in the CFA showed convergent and discriminant validity and was also cross validated using different samples of male and female. Moreover, in this research, the measurement items for trust are included in a measurement model consisting of the other latent variables along with their respective observed variables. This is done to observe the simultaneous effects of all the other measurement items and their error items. This is not like other studies of Pavlou (2003) and McKnight et al. (2002a) which has the measurement model consisting only of the latent construct and the relevant observed variables/measurement items. Thus, having the instruments for measuring the dimensions to be validated indicates that the dimensions of trust are generalizable in other e-commerce settings. This dispels the fears of Gefen and Straub (2004) that those dimensions may not be applicable in other research settings.

6.2.2 H2: Perceived Security and Technological Trustworthiness is Positively Related to Trust in E-commerce

As reported in chapter 5, the hypothesis H2 was supported. As per the structural model, the path estimates for the relationship between perceived security and technological trustworthiness (SEC_TRST) and trust (TRUST) is 0.286 ($p < 0.001$). Before re-specification of the structural model, the path estimate was 0.291 ($p < 0.001$). Thus, there was only a marginal change in the factor loadings on re-specification.

The findings of the study indicate that when e-commerce websites demonstrate the technological competence for performing the actions necessary to conduct an online transaction, it demonstrates its ability to provide the necessary security as required for processing a transaction as well as protecting the private information of users. Concern for

processing and use of personal information is a growing concern and major drawback to online transactions.

Secondly, the present study assumes that when e-commerce websites can impart such a feeling that personal data cannot be accessed by unscrupulous third parties without permission, then the websites are actually showing the integrity of good order in online business. Online businesses which stick to the rules and norms of privacy and security are imparting the sense in the minds of the customers that they are trustworthy. Hence, by ensuring security in transactions and capacity to protect personal information, the findings also lead to the understanding that trust in these websites will also increase.

The findings of the study also show that when e-commerce websites are perceived to be safe in protecting the personal information of users and secured in processing transactions, the e-commerce websites are expected to have the necessary skills to prevent from any technical failures, such as non-processing of card details during transactions. These experiences of safe transactions will also create the perception in the minds of the customers that future purchases in these websites will be worthy and pleasant. Hence, these are the two indictors of being able and predictable, which inherently contribute to trust formation.

The findings of the study also indicate that by building the assurance of security, privacy, and technological competence in the minds of the customers, the websites are actually demonstrating to be capable of performing to the best of interests to the customers. Customers when conducting transactions are mostly concerned with the privacy of their information and security of their transactional details (as stated earlier). E-commerce websites in actuality have the objective of providing the necessary goods and services to the

customers in exchange of their money. By providing the security and privacy, the e-commerce websites are instilling the faith and compassion in the transactions. This thereby leads to trust building in the minds of customers.

Previous research (Chen 2007; Chen 2006; Ha 2004; Liu et al. 2004; Chen 2004; Jarvenpaa et al. 2000), have showed security and privacy as two separate factors to influence online trust. In this study, the two factors have been combined into one factor, perceived security and technological trustworthiness (SEC_TRST) in line with the studies of Chen and Barnes (2007) and Corbitt et al. (2003).

Previous researches (Chen and Barnes 2007; Liu et al. 2004; Ha 2004; Corbitt et al. 2003; Salisbury et al. 2001) used student populations. Some studies (Ha 2004 and Corbitt et al. 2003) used very small samples and arose questions relating to generalizability. This study uses a large sample enabling to use advanced analytical techniques for data analysis such as Structural Equation Modelling (SEM), and hence, cross validates the results across samples overcoming the problems of generalizabilty to an extent.

In Chen's (2007) study, security and privacy were considered to be most important factor to affect online trust. However, the research (Chen 2007) went beyond to see whether trust led to further loyalty or purchase intentions in those e-commerce websites. In this present study, the outcomes of trust leading to further loyalty or purchase intentions were not explored. Future research need to explore such outcomes based on the model in the findings of this study.

Chen and Barnes' (2007) study focused on initial trust. Their findings showed that incomplete principles of security and privacy and poor web features to protect this security and privacy will pose threats for violation of trust in e-commerce websites. In this study, however, overall trust is being explored. On the other hand, Salisbury et al's (2001) found that online security will affect online buying behaviour as well as increase online shopping. These findings (Salisbury et al. 2001) are different than that of the findings of this study. In this present study, no attempt was made to find whether the factors lead to buying behaviour; instead the scope was limited to the factors affecting trust.

The findings of the present study also imply that in order to build customers trust in e-commerce, online vendors must devise a variety of means for preventing the fraudulent actions of unscrupulous parties. One of these means would be to collaborate with credit card companies or financial institutions in introducing secured transaction processing features. Hence, when these features are introduced in e-commerce websites, customers are prompted to input vital information which is shared by the user and the credit card company or bank only. This prevents no third party to use a credit card without the owner's authorization. Additionally, the online vendor benefits from checking whether or not the information provided by the customers are accurate and whether there is availability and sufficiency of funds in the credit card account. This information includes the rectification of errors in addresses for the delivery of items as well as information concerning the availability of funds in the credit card account to process transactions.

Providing one's personal information, including financial details is a risky task on the part of the customer. The findings also imply that customers expect that there should be a genuine guarantee from the online store/vendor that the personal information of customers is

safeguarded. If this is ensured, it is likely that customers will have greater trust in those websites. Online firms adopt several technical measures to protect and safeguard personal information. But these are usually expensive for online vendors to implement.

Moreover, the findings lead to the understanding that there is always a pay-off for online stores if customers perceive that privacy and the security of the transactions and personal information are protected and ensured by the e-commerce websites. The pay-off usually takes the form of increased trust leading to increased sales and competitive advantage over the competitors. Gradually as sales increases, firms will be in a better position to further their technological competence of increased security and safety measures in processing transactions. Thus, only when security and privacy concerns have been promised and addressed, will customers start to consider trusting and feeling satisfied with online vendors (Yousafzai et al. 2003).

6.2.3 H3: Perceived market orientation is positively related to trust in e-commerce websites

In chapter 5, the results of the analysis show that the standardized estimate for the relationship between market orientation and trust before re-specification of the structural model is 0.426 at $p < 0.001$. Thus, the hypothesis H3 is supported indicating that market orientation is a critical factor affecting trust in e-commerce. After re-specification, the path estimate is 0.367 ($p < 0.001$). Both the results show that market orientation is positively related to trust in e-commerce. This needs elaboration which is done below.

Theoretical and experimental research exploring market orientation in e-commerce is limited. Most of the previous studies were conducted in the field of organizational behaviour and marketing (Slater and Narver 1994a; Kohli and Jaworski 1990). In these disciplines, market orientation has been considered from the perspective of competitors and customers. However, in e-commerce literature, customer focus is a prime ingredient in research involving market orientation (Ribbink et al. 2004; Corbitt et al. 2003).

When considering market orientation from the customer viewpoint, there are three characteristics that e-commerce websites need to posses. These include ability to generate information, ability to disseminate information, and customer responsiveness. The findings of this study having customer focus confirm that websites possessing market oriented characteristics may be considered trustworthy.

Additionally, the findings indicate that online firms instil faith in customers by gathering and processing information about them and the communication of information between the trustor (customer) and the trustee (e-commerce website). This means that a social exchange takes place. Previous studies (Cyr et al. 2007) state that social interaction is a means of increasing trust in a media. Moreover, the present study findings indicate that the capacity of the online stores in processing information and making the best possible use of the information received is an indicator of competence of the online store.

One of the characteristics of market orientation as stated before is being customer responsive. The findings also indicate that in order to be customer responsive, online firms will stick to certain rules and principles for doing business. These principles usually entail quick response

and interaction with customers. Such good response rate and prudent handling of customer issues can serve as a predictor about the future performance of these websites.

The findings of this study are in line with those of previous studies of Ribbink et al. (2004) and Corbitt et al. (2003), both these studies have had some problems. Corbitt et al.'s (2003) study used students as samples and the analysis technique was a correlation analysis amongst the variables to test the hypothesis. Using only students as samples raises problems of representativeness of the sample to the entire population. Previous studies (Chen and Barnes 2007; Chen 2006; McKnight et al. 2002a) have recommended for not using students as respondents in studies. Moreover, correlation coefficients in studies using a restricted range of cases (such as students as have been done by Corbitt et al. 2003) often provide results which are difficult to generalize in other contexts using different sample groups (Pallant 2007). In the study of Ribbink et al. (2004), few component features of market orientation were explored to find out their relationship with online trust. In this study, the customer viewpoint of market orientation is considered as a whole which is in line with what Corbitt et al. (2003) had done in their research. Moreover, Ribbink et al.'s (2004) study used a small sample size posing problems for representativeness, which they themselves suggested to include large samples.

The findings also imply that market orientated e-commerce websites must gather information about customers' tastes and preferences. This will enable online vendors to understand whether or not the products and services available on the websites match the interests and preferences of customers. Additionally, the findings indicate that to be market oriented, online vendors may desire to customize products and services. This would serve as an indicator of the e-commerce websites' capability, availability of resources, and benevolence

or concern towards the customer (Koufaris and Hampton-Sosa 2004), thereby attracting customers to engage in transactions and strengthening trust in the websites.

The findings further imply that one of the means of building trust for online firms is to be responsive to customers. Therefore, e-commerce websites must encourage customers to provide feedback on any issues relating to their experience in the online stores. This is another means of gathering information to understand the preferences of the customers as stated earlier. Any feedback received from customers need to be dealt quickly and in a professional manner by the online store. This will build confidence among customers and encourage them to shop again in that website. Moreover, any steps taken on the basis of feedback received should be communicated to the customers. This will eventually bring a feeling in the mind of the customers that their opinions have been valued. The result will be increased emotional attachment to the online store and increased trust leading to increased sales.

In addition to being responsive, the findings also imply that to be market oriented and to manage trust, e-commerce websites need to deal with problems and issues faced by the customers in a prudent and effective way. These include dealing with customers' problems arising during sales or after sales effectively and in the best interest of the customers. Hence, quick communication with customers by the online stores providing detailed solutions to overcome their problems is the best way to increase confidence of customers.

6.2.4 H4: Social Presence is Positively Related to Customers' Trust in E-Commerce Websites

As reported in chapter 5, the hypothesis explaining the relationship between social presence and trust was not supported. The results of SEM show that the regression coefficient is – 0.058, with t-values indicating to be non-significant at $p > 0.05$. This was contrary to the expectation because previous authors (Cyr et al. 2007; Gefen and Straub 2004, 2003) showed that social presence influenced trust in online stores.

As may be noted most of these previous researches (cyr et al. 2007; Gefen and Straub 2004, 2003) exploring the affect of social presence on trust in e-commerce included students as samples in their survey. Moreover, the sample sizes used in these studies were small compelling the researchers to use partial least squares SEM for their data analysis. So these researchers (Cyr et al. 2007; Gefen and Straub 2004) suggested that future work need to be carried out in different contexts using different types of respondents as well as including large sample sizes. Therefore, equipped with the necessary theoretical bases from previous studies and using a covariance based SEM and a large sample size, this study found that social presence has no direct effect on trust in e-commerce. This means that a direct relationship between social presence and trust does not exist.

The implication of the findings is that the mere presence of an interpersonal interaction either through direct or indirect human contact will not contribute to building trust in e-commerce. Customers may sense the personal touch and human contact but it will not necessarily lead to trust formation. Thus, whatever features are added by online vendors to make websites sociable and to create a sense of warmth, customers will not perceive them as contributing to trust in e-commerce websites.

In Gefen and Straub's (2004) study, the relationship of social presence was examined with each and every of the four dimensions of trust, viz. ability, integrity, benevolence and predictability. Their findings showed that social presence influenced integrity, benevolence and predictability dimensions, but not the ability dimension of trust. In order to assess the effects of social presence on each of the dimensions of trust, it is found from the correlation matrix in appendix G of this study that no significant correlation exists between any of the measurement scale items for social presence with the measurement scale items of the three dimensions of trust that is, ability, integrity, and predictability. However, there is a substantial correlation between the measurement scale items of social presence with the measurement scale items of the benevolence dimension of trust. Future research need to look into more thoroughly the effects of social presence on each of these dimensions.

In another study, Cyr et al. (2007) showed that social presence has a direct effect on trust and their model did not propose relationships of social presence with the individual dimensions of trust contrary to what has been done by Gefen and Straub (2004, 2003). Both of these studies used a control setting where restrictions or control is established on what type of websites to use to derive the perceptions of the respondents. In this study, no such control was established. Here, the effect of social presence on trust is examined for the overall e-commerce websites rather than specific e-commerce websites. Despite these refinements, no relationship was found between social presence and trust. The explanation may be sought in the relationship between social presence and Perceived Security and Technological Trustworthiness (SEC_TRST), which is discussed in the next section.

6.2.4.1 The Relationship between Social Presence and Perceived Security and Technological Trustworthiness (SEC_TRST)

Existing literature (Cyr et al. 2007; Gefen and Straub 2004) based on social presence theory found that social presence has a direct influence on online trust. Social presence theory amongst others states that social context affects the medium used (Short et al. 1976) in transactions. In process of explaining the effect of social presence on trust, previous researchers (Cyr et al. 2007; Gefen and Straub 2004; Straub 1994; Rice et al. 1989) introduced the concept that the media determines the amount of social interactions/presence that is required to complete a task in that media. In e-commerce transactions, the medium is the internet. The assessment of the social interaction or communication that is necessary to complete such task of trusting an e-commerce website and purchasing from it depends on the amount of communication cues that are psychologically present on the internet (Cyr et al. 2007).

As stated earlier, in e-commerce the physical presence of the seller is not possible due to the virtual nature of the internet. Even then, online firms can create such presence by introducing certain website features, such as personalized greetings, human audio and video, personal address of the customer, etc. (Gefen and Straub 2003; Kumar and Benbasat 2002; Lombard and Ditton 1997). When such features are introduced, it creates a perception in the minds of the customer that the websites are technologically savvy. It also creates the sense that such technological ability is associated with the websites' capacity to protect the privacy and ensure secured processing of the transactions. Hence, by creation of this psychological sense of interaction or social presence and inducing the perceptions of security and privacy, it is likely that customers will have no hesitation in conducting this task of trusting these e-commerce websites and making the necessary online purchase in this internet medium.

The findings of this study conform to these theoretical explanations as stated above. The modification indices and standard residuals in the data analysis of the structural model in Chapter 5 recommended paths between social presence (SPIR) and perceived security and technological trustworthiness (SEC_TRST). Additionally, the analysis also recommended the deletion of the paths between social presence and trust. On creation of the new path between social presence (SPIR) and perceived security and technological trustworthiness (SEC_TRST), it appears that SEC_TRST is playing a mediating role between social presence and trust as shown in figure 5.5. This is evident from the indirect influence of social presence on trust amounting to 0.60 (as in 5.14, explained by the path relationship SPIR → SEC_TRST → TRUST).

Previous studies (Cyr et al. 2007; Gefen and Straub 2004, 2003) introducing the concept of social presence in e-commerce had several limitations as described earlier. In this present study no control or restrictions are introduced as have been doen in the previous studies. No preference is attached to any particular category of respondents (that is students) and since the sample was large, an advanced analytical technique was used. Hence, it may be perceived that for these reasons the relationship of social presence on trust was not accounted for in this study. The findings of this study may suggest that the users in conveying their perception on e-commerce websites in general, put much emphasis on the technological features to protect their privacy and security.

For online businesses, the findings of the analysis convey several implications. Customers who derive a sense of warmth and a personal touch in e-commerce websites will be convinced that the websites are not fraudulent but protects their customers from the

malpractices of unscrupulous parties. To ensure the features of the human touch and being personal and sensitive, usually some form of technological features need to be adapted to these websites. These features, for example, include installation of flash media softwares or extended Java programming and indicate the technological capacity of the online store. Usually when these features are adapted, the findings of the analysis suggests that customers will perceive that online stores have the technical capacity to further protect the privacy of the customers as well as ensure the security and conduct the transactions in a protected and safe manner. In other words, on sensing the human touch when dealing with e-commerce websites, customers perceive that the e-commerce websites have the capacity to ensure privacy and security of their information and transactional details using the technology available.

The results of the study also indicate that customers will not only trust an e-commerce website based on the perception that it demonstrates social presence; there must be sufficient assurance to build the perception in the minds of customers that the e-commerce website is secure, protects personal information, and the technological measures are in place to complete transactions safely. This will ultimately build confidence in the minds of customers and lead to trust formation in those websites.

6.2.5 H5: Relational Benefit is Positively Related to Trust in E-commerce

As reported in chapter 5, the finding of this study shows that relational benefit (REL_BEN) is positively related to consumer trust in e-commerce for which the regression co-efficient is 0.472 at $p < 0.001$. As stated earlier, relational benefit is the benefit customers receive from long-term relationships over and above the core service performance (Gwinner *et al.* 1998).

In exchange relationships as in buying and selling, customers will look for such long-term relationships to reduce anxiety, enhance decision making process, reduce information processing time, and achieve more cognitive consistency in their decisions. The findings indicate that e-commerce websites that provide the benefits of reduced time and anxiety as well as improved decision making have the competence and skills to process transactions with no chances of failure. Firms which show such low chances of technical failure in an online transaction are usually considered to be trustworthy.

The findings also indicate that online firms which provide ease in searching for products and services that are difficult and costly to find in traditional stores are actually demonstrating their ability to be beneficial to customers. Searching of products and services that are suitable and convenient for the user will increase the confidence in the minds of the customer to engage in long term relations with those websites. This will ultimately lead to development of trust in those websites.

The finding of this research supports the proposition of Ruyter *et al.* (2001) that relational benefit is positively related to trust in e-services; although Ruyter et al's (2001) hypothesis was rejected. This is because Ruyter *et al.* (2001) used complementary predicator variables to see which variable possessed more influence on trust in e-services. Moreover, the study (Ruyter *et al.* 2001) was conducted in an experimental setting. Their findings revealed that organizational reputation and perceived risk downsized the effect of relational benefit on trust. Other researchers (like Park and Kim 2003), who covered only Korean respondents, considered relational benefit as an antecedent to commitment and long term orientation. The present study benefits to have a diversified pool of respondents from different countries.

The findings imply that when relational benefits are provided by e-commerce websites, it is necessary that e-commerce websites understand the needs of customers. Hence, the long term orientation develops when websites are conscious about the interest of their customers. This ultimately forms the basis that future engagements will hold and arise, eventually leading to increased trust in those websites.

The finding further reveals that customers will look for e-commerce websites where they can reduce the time spent and improve their search for desired products and services. Consequentially, in future purchases, customers will prefer to look for these websites and interact more with them. Therefore, eventually this leads to a long-term orientation. The end result is enhanced decision making and reduced anxiety when dealing with online transactions in e-commerce websites. Thus, if websites can provide such advantages to customers, the result is likely to increase trust in those e-commerce websites.

The findings also imply that customers like to derive relational benefit from online stores when they find it suitable to obtain products and services cheaper at online stores compared to traditional stores. Not only that, the findings also indicates that customers will also derive a relational benefit from those stores that provide products and services that are difficult to find in traditional stores. Ultimately, when all these issues are covered, customers will experience feelings of increased confidence in those e-commerce websites leading to increased sales for the online vendor.

6.2.6 H6(a): User Interface Quality is Positively Related to Relational Benefit

Chapter 5 shows that the hypothesis H7 (a) was supported; the standard co-efficient is 0.99 ($p < 0.001$). This finding indicates that customers will search for certain features in e-commerce websites, which will serve as cues for them to be attracted to obtain relational benefits with them. These features include appropriate design layouts, convenience of searching, and availability of ease of navigation. Relational benefit, as stated earlier is a means to achieve greater efficiency in their decision making, reduce information processing time, achieve more cognitive consistency in their decisions, and to reduce the perceived risks associated with future choices (Sheth and Parvatiyar 1995). It appears from the findings that the features of the e-commerce websites serve in deciding whether such relational benefits will be obtained or not. The absence of a real seller and exposing to the virtual environment of e-commerce makes it to interpret that these qualities will enable the user/customer to browse the website with more ease and contribute to engaging in a long term relationship and leading to enhancing of customer trust.

The finding of this study is in line with those of previous studies (Chen 2004; Ribbink et al. 2004; Kim 2003; Park and Kim 2003). The data analysis showed that user interface quality (UIQ) had an indirect effect amounting to 0.475 explained by the path UIQ → REL_BEN → TRUST. This indirect effect was part of the direct effect of UIQ on REL_BEN (Kline 2005, p.128). However, some researchers used different terminologies for user interface quality (UIQ). Conveying the similar meaning, for instance, Chen (2004) used the term 'website characteristics', Kim (2003) used 'website quality', and Ribbink et al.'s (2004) study used e-quality. But these studies (such as Ribbink et al. 2004; Kim 2003) had limitations in terms of using a small sample size. Chen's (2004) study suffered from lack of use of appropriate analytical techniques for explaining the inter-relationships of the variables. All these

limitations have been overcome in this study by using a large sample and advanced analytical technique like SEM.

Now, the practical benefits of the findings of the study are also interesting. The findings imply that when customers visit a website for the first time, the appearance provides an impression of whether or not the website is suitable to conduct transactions. Customers often feel confused and reluctant to shop in stores which have poorly designed layouts and unattractive features. Hence, online stores often loose businesses due to the failure to understand the difficulties the customers face in browsing the websites in searching for the required products and services.

The findings also indicate that the quality of the website features as well as ease of searching and convenience in navigation inputs a feeling of pleasantness in shopping and comfort in transacting in that online stores. Ease of searching for products and services is one reason for customers to think that the website is trustworthy.

6.2.7 H6(b): Perceived Product and Service Information Quality is Positively Related to Relational Benefit

Chapter 5 reported that this hypothesis was not supported in this study although in the studies of Park and Kim (2003), the relationship was supported. There may be various reasons why the hypothesis was not supported. Park and Kim (2003) study used pre-selected online bookstores to derive responses of respondents. In this study, as stated earlier, no such control was established. Moreover, Park and Kim (2003) study only had Korean respondents from companies. In this study, having the websites being accessible to global respondents, it

appears that the responses may have been varied because of differing ethnic backgrounds and nationality. Responses from respondents from one nation, especially employees of companies, will likely to differ from respondents who come from varying backgrounds.

In Park and Kim's (2003) study, it was concluded that searching and purchasing product and service information is critical to influence customers' decision in purchasing from the website. However, the findings of this study show that customers are less concerned about how adequately the websites provide information about the products and services. Their decision to engage in long term relationships and deploy risk reduction techniques will depend on the features of the websites in terms of layout, convenience in browsing, and ease of navigation, as have been explained by accepting the hypothesis 7 (a) in the data analysis. Interpretations can be made that customers have prior knowledge from other sources about the items that they want to buy, and hence are not influenced with the availability of product and service information on the websites.

6.2.8 H7: Importance of Websites' Reputation Significantly Influences Customers' Trust in E-commerce

Previous researches (Chen and Barnes 2007; Chen 2004; Pavlou 2003; Ruyter et al. 2001; Jarvenpaa et al. 2000; Smith and Barclay 1997) have shown that website reputation (also termed as web retailer reputation or organizational reputation) has a positive influence on trust in e-commerce. These studies used pre-selected websites and the data were derived on the basis of the perception of the respondents to those selected websites. In this study, no such control was used and the emphasis was on the importance of the websites' reputation rather than the reputation of websites. Modifications to the measure of reputation were made

as explained in chapter 4 and they showed high reliability with Cronbach Alpha scores to be higher. But the findings of the study did not match with the expectations. This may be due to the fact that the present study did not focus on specific websites and the perception of the respondents to all e-commerce websites in general was considered.

The implications of the findings are two fold. As stated in chapter 3, customers will look for signals which make them to decide whether interaction with online shops will be profitable or not (Ruyter et al. 2001; Ippolito 1999). When searching for these signals, customers will also be able to understand whether the websites are secured, capable of protecting privacy, and demonstrate the necessary capacity to be considered as technologically trustworthy. In online transactions, users are mostly concerned with security and privacy issues (Chen 2007; Chen and Barnes 2007); users will opt for those websites where there are few chances of violation of privacy and threat to security. In other words, signals of good reputation will not only ignite search for websites which will lead them to profitable outcomes but also enable them to understand and develop the perception that there is increased perceived and technological trustworthiness of these e-commerce websites. The second fold of interpretation is that while customers search for these signals and reach the understanding that they are confident to shop in specific websites, they must also be assured with the perception that these websites have the adequate measures and capability of protecting the privacy and conducting the transactions of the shopping moment. This means that in addition to creating the good reputation in the minds of the customer through friends and relatives there must also be confirmation of the perception from the features of the e-commerce websites that they are safe and technologically trustworthy. If this is ensured, then the trust of the customers will build on those websites.

The findings of this study after a re-specification of the structural model with a path from ORG_REP to Perceived Security and Technological Trustworthiness (SEC_TRST) and deletion of the path between ORG_REP and Trust conform to the above discussion. It appears that SEC_TRST is playing a mediating role for the indirect effect of ORG_REP on Trust. The statistics show that the effect of importance of websites' reputation (ORG_REP) on SEC_TRST, $\beta = 0.298$ ($p < 0.001$), indicating a positive influence of ORG_REP on SEC_TRST. The indirect effect of ORG_REP on TRUST as indicated in the path ORG_REP → SEC_TRST → TRUST is 0.114. Moreover, the correlation matrix in appendix G also shows substantial correlations between the measurement scale items for importance of websites' reputation (ORG_REP), perceived security and technological trustworthiness (SEC_TRST), and Trust. Additionally, the findings of this study, using large sample size, have overcome the problems of representativeness. The covariance based SEM used to analyze the data makes the findings to be cross validated across different groups of samples (as discussed later) making the results generalizable.

The findings of the study further imply that customers in online shopping will prefer to shop from well-reputed websites as they perceive that these websites posses less risk in terms of violation of security and privacy as well as conducting the transactions safely. In order to enable this, coupled with the objective of creating a good image of themselves, e-commerce websites must have features which will make customers feel that the websites are safe and technologically trustworthy to shop in.

The findings also indicate that customers will not shop websites that they have less information about. The interpretation is related with the fact that lack of knowledge with

specific websites means less positive perception about the websites' features for conducting the transactions safely and protecting the personal information of the customers.

In conclusion, it can be stated that this finding is a significant contribution to research on factors affecting trust. This phenomenon of a mediating role for SEC_TRST between trust and the two factors of social presence and ORG_REP has not been reported in any previous studies. Both these factors indirectly affect online trust indicating the fact that they will not be able to influence online trust unless there is perception that the websites are safe and secured and the websites are capable of processing of transactions safely.

6.2.9 H8(a): High Levels of perceived security and technological trustworthiness will lead to high levels of trust for customers with more experience of the web compared to customers with low experience

&

H8 (b): High Levels of trust will lead to lower levels of risk for customers with more experience of the web compared to customers with low experience

Both these hypotheses H8 (a) and H8 (b) were rejected. The major implication of this finding is that the model developed in this study (as displayed in figure 5.5) holds good across both highly experienced and less experienced group of respondents. Additionally, the findings suggest that with the development of security and privacy measures over time, concerns for these issues will not vary across users with different levels of web experience. There are a variety of reasons why such things may happen.

Firstly, in present daily life, with the advent of information technology, the internet is considered as an integral part of life. News and knowledge about this technology is being transmitted to individuals by other media such as, TV, newspapers, etc., and personal interaction with friends. As a result, people are getting used to the, the internet and the functional barriers and limitations that were encountered by users are off-set

Moreover, in previous studies (Slo et al. 2005; Corbitt et al. 2003), it was found that as customers increase their experience with the web, they become more encouraged to shop online and have more trust in e-commerce websites. The study (Slo et al. 2005) also showed that people with no experience of the internet will react to engage in online shopping; the high risk perception will prevent the customers to shop online (So et al. 2005). Accordingly, researchers like Corbitt et al. (2003) stated that some customers will trust certain websites despite they perceive it to be of high risk and engage in transactions. They (Corbitt et al. 2003) also showed that when users are more experienced with the internet, they will have more concern for the security and privacy issues associated with online transactions; this will eventually affect their online trust.

None of these phenomenon have been observed in this study. This was indicated by the rejection of these two hypotheses. In the study of Corbitt et al. (2003), the respondents as said earlier, were students and the analysis technique that was adopted was correlation analysis. Using students as respondents affects generalizability and use of correlation analysis (as stated earlier) makes the results difficult to generalize (Pallant 2007). To overcome these limitations advanced analytical techniques like SEM is used in this study. As a result, it is possible to make comparative study of the model across samples. Comparative analysis of models across samples is limited in previous research. This study makes it explainable that

although users may differ in terms of their weekly usage of the internet, they do not differ in perceiving how the different factors affecting trust and their inter-relationships vary across high web users and low web users.

This study is unlike So et al.'s (2005) study, which was conducted in Hong Kong where respondents had more access to shop in supermarkets. Therefore, customers were more prompted to shop in traditional stores instead of shopping online. In this study, the research context is different than that of So et al.'s (2005). This survey is geared to obtain responses from worldwide respondents. The questionnaire was made online enabling it accessible to attract a large pool of respondents. Moreover, the study does not suffer from the bias to include respondents who only prefer to shop from traditional stores and have never made an online purchase. This is ensured by using a control feature in the online questionnaire that entailing that the respondents must have made an online purchase in the last 6 months.

The implications of this findings is that e-commerce websites do not need to adopt different measures for enhancing trust amongst varying experiences internet users. In association with trust conception, the risk perception will remain the same across these different experienced web users. Additionally based on experience, customers will not vary in their perception of the available security and privacy issues when shopping online. Alternatively, in previous studies (e.g. Corbitt et al. 2003), it was observed that high concern for security and privacy is more across less experienced web users. Moreover, in this study, the findings also indicate that customers trust on e-commerce will not vary across users with varying web experience.

6.2.10 Effect of Gender Differences on Parameter Estimates of the Model

The findings indicate that the model developed in figure 5.5 holds good across the two groups of samples of male and female. In other words, the parameter differences across these two groups of samples are not significantly different.

Previous studies on gender differences in e-commerce explore the differences in relationships between the factors influencing trust as well as those which explain differences in purchase decisions. Awad and Ragowsky (2008), for instance, found that men and women develop trust in online retailer differently and the main significant contributor to building trust is word-of-mouth quality. In other studies (Cyr et al. 2007; Rodgers and Harris 2003), researchers have pointed out that women seek more warmth and sociability which influences their loyalty to websites.

Both these studies (Awad and Ragowsky 2008; Cyr et al. 2007) were conducted in an experimental setting. In Awad and Ragowsky's (2008) study, respondents were purchasers of books, music, and movies. In Cyr et al.'s (2007) study, an experimental website was used to deduce respondents' experiences and perceptions in buying concert tickets online. In this study, however, no such control or experiment was used as have been stated earlier. Respondents answered the survey based on their actual experience of overall e-commerce websites. The fact that perceptions and responses did not vary across gender samples may be due to such settings being used in this study.

By choosing specific websites or specific products as controls in a study, researchers (e.g. Kim and Kim 2004) have also found that women will be more pro-active in purchasing

products from the e-commerce websites where they are likely to find products that serve their tastes. These usually include jewellery, clothing, and accessories.

Based on all these facts, the findings of this study signify that when no control setting is being used in a survey factors that affect trust remain the same despite these two groups may have different preferences and tastes for websites to shop online. It may be for instance, that men may opt shopping in *www.amazon.co.uk* to buy electronics or books and women prefer to buy from *www.littlewoodsdirect.com* to buy clothing and perfumes. When responding to the questionnaire in this study, these two samples of respondents may provide similar responses to the questionnaire indicating no differences in the perceptions affecting trust, but in actual practice, their tastes and preference for websites will vary. When tastes and preferences vary, swapping websites between these two groups may reveal some differences. This will require a control, which was not made in this study. Therefore, future studies can further look into these differences by setting controls

6.2.11 Effect of Differences in Age and Income on Factors affecting Trust in E-Commerce

As reported in chapter 5, the multi-group analysis did not reveal any differences in parameter estimates across samples with differing age and income. The main implication of this finding is that the model developed (as shown in figure 5.5) holds good across populations with varying age and income.

Previous studies did not report any differences in factors affecting trust in e-commerce based on differences in age and income. Although some researchers (Chen and Barnes 2007;

Corbitt et al. 2003; Jarvenpaa et al. 2000) used students samples and stated that since the respondents belonged to a certain age group, the results of their findings may not be generalizable. In this study, the questionnaire did not attempt to find the profession of the respondents and therefore no attempt was made to find out whether parameter estimates varied across populations which included students and which did not include students. Moreover, this finding of no parameter differences across samples with differing age cannot lead to the interference that there are no differences in parameter estimates across samples which include students and which do not include students. This may be as the younger group of respondents may include working people as well as students.

Additionally, in the study it was found that there were no respondents below the age of 15 years. The reason for this finding is that respondents below the age of 15 years could not access credit cards as credit card companies required customers who are above the age of 18 years to enter into a contract.

In case of income, although the respondents included people with varying income, for convenience in multi-group analysis, the sample was divided into two groups— respondents with annual income above £20,000 and respondents with annual income less than £20,000.

The practical considerations of the findings is that online businesses do not need to differ or consider separately the factors that affect trust when dealing with customers with varying age and income. It appears that when dealing with e-commerce websites in general, no such difference in parameter estimates hold. But in case of specific websites, parameter estimates may vary as tastes and preferences may vary across customers. This needs to be looked upon in future research.

6.3 DISCUSSION OF THE FINDINGS AND THE SAMPLE BIAS

When a convenience sample is used, the chance of sampling bias is increased. This is because the convenience sample includes respondents who are easy to reach by the researcher and may not represent the actual population. To reduce sample bias, a random sampling technique needs to be adopted. In this research, a complete list of all the online customers was not available, and as a result a convenience sample was used.

When sample bias exists, the findings of the study may be applicable only to a certain segment of the population. This means that the findings of the study will not be generalizable in other situations. Hence, if the study is conducted in different contexts new relationships between variables may emerge. This will lead to formation of different models. Additionally, the magnitude of the relationships between the variables will vary.

To reduce the impact of sampling bias on the findings of this research and make the sample representative of the population, the following actions were taken. Firstly, a large sample was compiled (as explained in section 4.8.1). As Schonlau et al. (2002) argue, when the research involves large populations and the size of the convenience sample is similarly large to what would have been achieved should a probability sample was collected, the chances of bias associated with non-representativeness are reduced. Secondly, the process of compiling the database ensured that there was no group of consumers that was over/under represented in the final sample. Moreover, the e-mail addresses were derived randomly from the database further reducing the likelihood of sample bias. Thirdly, a comparison of the demographic characteristics (gender, age, education, and income) of the sample with available census data was done (as explained in pages 99-100 of the thesis). The comparison confirmed that there

are no major differences in demographic characteristics between the sample and the available census survey. Finally, the resulting structural model (Figure 5.5) was cross validated across samples varying in gender, age, and income, and no differences in parameter estimates were found.

Although it is acknowledged that all e-commerce consumers did not have equal probability of completing the survey and therefore the final sample cannot be entirely free from bias, the above actions have limited its impact to the results. Therefore, this research did not fully meet one of its original aims i.e. using probability samples to ensure representativeness of the sample to the population. However, when compared with previous studies in the same field the results of this study are more generalizable as (a) it has achieved a considerably larger sample (e.g. Chen 2006; Corbitt et al. 2003; Jarvenpaa et al. 2000); (b) it has used the general population instead of student populations as subjects to the survey (e.g. Cyr et al. 2007; Corbitt et al. 2003; Ribbink et al. 2004; Gefen and Straub 2003, 2004; McKnight et al. 2002a); and (c) it has used advanced analytical techniques such as structural equation modelling (e.g. Corbitt et. al. 2003; Kim 2003).

To address the above concerns future research needs to compile samples which are free from bias. This could be achieved by attaching invitations to popular search engines such as *www.google.com*. Furthermore, future studies can ensure generalizability by adding more control variables, such as nationality and user preferences.

6.4 SUMMARY

This chapter provides detail of the theoretical and practical implications of the results of the testing of the hypotheses as has been conducted in chapter 5. In addition, the findings are compared to that of previous studies. The methodological and theoretical limitations of previous researches are also addressed in this chapter.

CHAPTER 7:

CONCLUSIONS

7.1 OVERVIEW

Throughout this thesis, it has been aimed to advance and contribute this research towards addressing the research questions that have been established in chapter 1. This chapter presents an overview of the research questions and how they were addressed, and provides explanation of how they contribute to existing knowledge.

To address the research questions, this study started with review of the existing literature on factors affecting trust in e-commerce. A theoretical framework was devised leading to the development of a model providing a comprehensive list of factors affecting trust in e-commerce as derived from previous research . To test this model and based on the nature of this research (as discussed in chapter 4), a survey technique is adopted in this study to collect data. The survey is based on the actual experience of the respondents irrespective of the websites from which they might have purchased. The responses collected were encoded and transferred to a database and then put in a format to facilitate analysis. The responses of 789 respondents were collected, of which 703 were usable. Besides treating the demographic characteristics of the respondents by simple statistical analytical tools, a multivariate data analysis with exploratory factor analysis using principal component analysis, confirmatory factor analysis (CFA), and structural equation modelling (SEM), was used for analysis of the data. Hence, on the basis of the analysis of the data, the study enabled to gather answers to these research questions. These are now discussed in detail and provide the major theoretical contributions of this study.

7.2 ANSWERS TO THE QUESTIONS

The research questions are placed in italics and they are answered as follows. Based on this discussion, the next section explains how the findings contribute to existing knowledge.

- *How do we measure trust in online transactions?*

To address this question, in chapter 2, on review of the dimensions cited by various researchers, it was concluded that there are four dimensions— ability, benevolence, integrity, and predictability. To confirm whether these four dimensions constitute to trust measurement in e-commerce, in chapter 5, confirmatory factor analysis was used in the data analysis. The results indicated good fit and hence confirmed the validity of the four dimensions in measuring trust.

- *What are the factors that affect trust in e-commerce?,*

To answer this question, chapter 2 reviewed the existing literature and concluded that trust in e-commerce transactions is affected by market orientation, relational benefit, perceived security and technological trustworthiness, user interface quality, relational benefit, importance of websites' reputation and social presence.

- *How do the factors affecting trust relate and inter-relate to each other?*

To address this question, chapter 3 developed a theoretical framework of this study. A model was developed to explain the factors that affect trust in e-commerce. The findings in chapter 5 confirm that there are three factors that have a direct influence on trust, viz. market orientation, perceived security and technological trustworthiness, and relational benefit. Additionally, the factors, importance of websites' reputation and social presence, have an

indirect effect on trust with perceived security and technological trustworthiness playing the mediating role. Moreover, user interface quality influences relational benefit to explain the indirect effect of user interface quality on trust. The findings also show that the relationship between perceived risk and trust is inversely related and there is no relationship between perceived product and service information quality and relational benefit.

7.3 THEORETICAL CONTRIBUTIONS OF THIS STUDY

Based on the discussions of how the research questions have been addressed, the major contributions to knowledge are summarized as follows:

- The development of a comprehensive model explaining the dependence and inter-dependence of the factors affecting trust in e-commerce.
- Understanding trust in e-commerce as a multi-dimensional construct consisting of four dimensions— ability, benevolence, integrity, and predictability. Hence, e-commerce websites will be trusted when the trustee (that is, e-commerce websites) will demonstrate these four dimensions.
- Explaining the relationship between trust and perceived risk in online transactions to vary inversely. This means that as trust in e-commerce increases, perceived risk will decrease. This also means that the factors that affect trust directly or indirectly will lead to an ultimate indirect effect on perceived risk that is, reduced perception of risk in online transactions.

The model developed in this study holds well across different samples of respondents. Using a large sample size, the model was tested across different samples with varying characteristics. Hence, there are no differences in factors affecting trust in e-commerce across

men and women as well as between people with varying age groups and varying income. Similarly, differences in web experience do not pose substantial significant changes in parameter estimates in the model. This means that the results of this study are generalizable to a certain extent.

7.4 CONTRIBUTIONS FOR MANAGERIAL AND BUSINESS PRACTICES

In addition to contributing to existing knowledge, the study also has certain contributions for managerial and business practices. These are now discussed in detail as follows—

Firstly, user interface quality had an indirect effect on trust with relational benefit playing the mediating role. Online businesses need to develop their websites in such a way that it is convenient in navigation and use for customers. Convenience not only means the ease of browsing and search for products; it also includes the capacity to download the web pages of the website with ease and speed. Moreover, businesses must focus on the layout of the website in order to make information search easier and simpler. A layout provides the actual impression of the website that a customer obtains when he first enters that website through the browser. Customers use the e-commerce websites usually to gather information and compare products and services with offline stores. If ease of obtaining information is ensured, then customers feel relaxed and will be attached to the websites. This will increase confidence and improve trust on the websites.

Secondly, market orientation was confirmed to be one of the factors that affect trust directly. The study contributes to the understanding that customers are sensitive and expect online businesses to demonstrate being responsive and customer focused that is, market oriented.

Therefore, products and services need to be catered to the tastes and preferences of the customers. Moreover, managers need to ensure that customer enquiries about the product or anything related to the business need to be dealt quickly and in a responsible manner. This will eventually result in increased trust in online transactions.

Thirdly, social presence was found to influence perceived security and technological trustworthiness which then influenced online trust meaning that e-commerce websites need to develop features which will create a sense of warmth and belongingness to the customer. These features include a welcome message and personalized greetings when the user opens the website. Other ways of creating a sense of warmth is a means of direct communication with the web vendors through online chatting portals. This enables customers to directly interact with the sales advisor and enquire about any questions relating to their purchase. This inputs a feeling to the customer that there is someone behind the technical feature of the website. Additionally, such features when adopted by e-commerce websites create the perception amongst customers that the websites have the competence of carrying transactions securely and protecting the privacy of the customers. This means that by improving security measures as well as introducing privacy policies, online firms can attract customers to trust these websites.

Lastly, it was found that importance of websites' reputation indirectly influenced trust in e-commerce with perceived security and technological trustworthiness playing the mediating role. Therefore, managers need to understand how the informal grapevine of rumours about performance and experiences of interacting with e-commerce websites spread fast across people. Managers also need to understand that such spreading of information across customers will not necessarily contribute to trust formation in the minds of the customers

unless online businesses demonstrate that they have the necessary security and privacy measures online transactions can be conducted in a safe and secured manner.

7.5 TRUST IN E-COMMERCE: THE BIG PICTURE

This research has certain holistic contributions which benefit customers, businesses/managers, the government, and the society as whole. These are illustrated in brief as follows.

When trust is ensured in e-commerce, customers will be more willing to transact in e-commerce websites in line with traditional business establishments. As stated earlier, the very nature of the online environment discourages customers to transact. When the factors contributing to trust is enhanced, these inhibitors will be overcome, and customers will engage themselves in e-commerce with no hesitation. Moreover, it can also be deduced that by ensuring trust, customers will also accept the use of new technologies and features offered by the e-commerce websites for conducting of online transactions. These technologies may be in the initial stage or trial stage of production and since customers have the notion that nothing will go wrong in transacting in the e-commerce websites, there will be no reluctance in using and customizing this new technology. Another benefit that customers will accrue from enhancing trust is the desire to search and acquire products and services not accessible in local traditional markets. In essence, it is the mere relinquishment of personal needs of customers for goods and services.

From the business/manager point of view, ensuring trust in online transactions means increased sales. It also means encouraging more traditional businesses to come online and

capturing the potential customer base. Additionally, the overhead costs are reduced as e-commerce websites need to not employ large number of staff or have large inventory for warehousing. Increased sales lead to increased inventory turnover, which results in maintaining a low inventory level for the businesses. Moreover, to stay in businesses, online firms will be more receptive to customer needs and have products and services meeting the tastes of customers.

As stated when trust is ensured, customers will be more attracted to online stores. This benefits government bodies in earning more revenue in form of taxes. The government will be encouraged to invest in building infrastructure for internet to reach its population. In addition, new laws for regulation and safe guarding of public interests will be initiated.

Lastly, the society benefits in having more information on online transaction being dispersed throughout. When online firms evolve and customers have more interactions with them, the news of their engagements spread fast within populations. The society infuses the norms and values prevalent in its existing structure to the web practices and online transactions. The society also benefits from having more jobs and money generation from online businesses.

7.6 LIMITATIONS OF THE STUDY AND DIRECTIONS FOR FUTURE RESEARCH

This study has made valuable contributions to research in e-commerce. However, they have to be seen in the context of certain limitations. These are discussed in detail below along with recommendations for future research.

Firstly, although a comprehensive list of factors affecting trust was used to develop an integrated model from review of existing literature, these may not be an exhaustive list of all the factors. Changes and growth in the e-commerce website technology and the internet environment may cause emergence of new factors. E-commerce has advanced from the early 2000s and still has loopholes in security and encryption matters and weaknesses in the software used in operating the websites. These drawbacks are gradually being taken care off and in future such issues may be of less concern. Moreover, with the further advancement of e-commerce and development of new tools and techniques for conducting transactions, new issues may arise which may be potential factors influencing trust in online transactions.

Secondly, this study focused on the overall trust of respondents towards e-commerce websites but did not explore specific websites in order to indicate which website can be more trusted and which can be less trusted. Future studies can look into such aspects by comparing trust across websites. This also includes exploration across well-known and less well-known websites.

Thirdly, the study suffers from certain sample bias. Sample bias occurs when a convenience sample is used. This sample bias has led to a number of the significant problems which began early on in the research. However, actions have been carried out to limit their impact on the findings as explained in sections 4.8.1 and 6.3. It is recommended that future research uses random sampling techniques to achieve more representativeness of the sample of the population.

Fourthly, the social risk component of the 'perceived risk' variable failed to load on to the factor perceived risk in the exploratory factor analysis. The confirmatory factor analysis

(CFA) also revealed that the modification indices indicated deletion of the item. On a close investigation of the wording of the questionnaire, it was observed that the respondents may have failed to understand what the question was intended to be. As this item in the questionnaire was borrowed from another study, it may not necessarily have been suitable for this study. Social risk being an integral component of risk (as per the study of Corbitt et al. 2003), future studies need to develop the wording and provide a proper measurement scale for this item.

Fifthly, the model derived in this study does not show the outcomes of trust, especially the effect of trust on purchasing behaviour on the internet. Future studies need to explore such outcomes using this model derived in this study.

Finally, the model (as shown in figure 5.5) was tested across samples of differing age groups, genders, web experience, and varying income, and thereby to a great extent generalizability was ensured (Hair et. al. 2006; Byrne 2001). But there may be other research contexts completely different to the present research setting. Therefore, to ensure further generalizability, this model needs to be tested in other research settings and situational contexts, such as differing ethnic groups, differing countries, differing reasons for use of internet, differing type of usage of internet technologies, etc. In addition, there is also the issue of whether the model will be applicable in future span of time. Since, trust is a concept which develops through processes over time (Pavlou 2002; McKnight et al. 2002a), it can be anticipated that the model will hold good over some period of time.

CHAPTER 8:

BIBLIOGRAPHY

Aaker, D.A., 1991. *Managing Brand Equity*, The Free Press, New York.

Ahmad, M.H. and Choudhury, M.M., 2001. E-Commerce: An Overview Along with its Prospects in Bangladesh. *Dhaka University Journal of Marketing*, 4, 36-56.

Allen, D., 2000. Women on the Web. *Economist.* Available from: http://www.ebusinessforum.com/index.asp?layout=rich_story&doc_id=2573&categoryid=&channelid=5&search=versus [Accessed 13 December 2004].

Alzola, L.M. and Robaina, V.P., 2007. Measuring the Results in B2C E-Commerce. *International Journal of Quality & Reliability Management*, 24 (3), 279-293.

Anderson, J. C., and Gerbing, D. W., 1988. Structural equation modeling in practice: A review and recommended two-step approach. *Psychology Bulletin*, 103 (3), 411-423.

Anderson, J.C. and Narus, J.A., 1990. A Model of Distributor Firm and Manufacturer Firm Working Partnerships. *Journal of Marketing*, 54 (1), 42-58.

Andreassen, T.W. and Lindestad, B., 1998. Customer loyalty and complex services. *International Journal of Service Industry Management*, 9 (1), 7-23.

Anderson, E., and Weitz, B., 1989. Determinants of continuity in conventional industrial channel dyads. *Marketing Science,* 8 (4), 310-323.

Armstrong, J. S., and Overton, T, 1976. Estimating Non-response Bias in Mail Surveys, *Journal of Marketing Research,* 14, 396-402.

Armstrong, L., Phillips, J.G., Saling, L.L., 2000. Potential Determinants of heavier internet usage. *International Journal of Human Computer Studies*, 53, 537- 550.

Auger P. and Gallaugher J.M., 1997. Factors Affecting Adoption of an Internet-based Sales Presence for Small Businesses. *The Information Society*, 13 (1), 55 - 74

Awad, N. F. and Ragowsky, A., 2008. Establishing Trust in Electronic Commerce through Online Word of Mouth: An Examination across Genders. *Journal of Management Information Systems*, 24 (4), 101-121.

Axelrod, R., 1984. *The Evolution of Cooperation,* Basic Books.

Azola, L.M. and Robaina, V. P. 2007. Measuring the results in B2C e-commerce. *International Journal of Quality & Reliability Management,* 24 (3), 279-293.

Babin, B.J. and Griffin, M., 1998. The Nature of Satisfaction: An Updated Examination and Analysis. *Journal of Business Research*, 41 (February), 127-136.

Baier, A., 1986. Trust and Anti-trust. *Ethics* 96, 231-260.

Bakos, Y., 1997. Reducing buyer search costs: Implications for electronic market places. *Management Science,* 43 (12), 1667-1692.

Babbie, E., 1995. *The Practice of Social Research.* Belmont, CA: Wadsworth Publishing Company.

Bagozzi, R. P., Yi, Y., and Phillips, L. W., 1991. Assessing Construct Validity in Organizational Research. *Administrative Science Quarterly,* 36(3) 421-458.

Barber, B., 1983. *The Logic & Limits of Trust.* New Brunswick, New Jersey: Rutgers University Press.

Barksdale, H .C. and Darden, W., 1971. Marketers' Attitude Towards the Marketing Concept, *Journal of Marketing*, 35, 29–36.

Barnes, S. and Vidgen, R. 2001. Assessing the quality of auction web sites. *Proceedings of the 34th Hawaii International Conference on Systems Sciences*, (Jan.) 3-6.

Bharati, P. and Chaudhury, A. 2004. An Empirical Investigation of Decision-Making Satisfaction in Web-based Decision Support Systems. *Decision Support Systems,* 37, 187-197.

Bhaskar, R. 1989. *Reclaiming Reality: A Critical Introduction Contemporary Philosophy.* London: Verso.

Bhattacharjee, A., 2002. Individual Trust in Online Firms: Scale Development and Initial Test. *Journal of Management Information Systems,* 19 (1), 211-241.

Bhattacharya, R., Devinney, T.M., and Pillutla, M.M., 1998. A formal model of trust based on outcomes. *Academy of Management Review,* 23 (3), 459-472.

Bell, M.L. and Emory, C.W., 1971. The Faltering Marketing Concept. *Journal of Marketing,* 35, 37–42.

Bentler, P.M., 1980. Multivariate analysis with Latent Variables: Causal Modeling. *Annual Review of Psychology,* 31, 419-456.

Bentler, P.M., 1990. Comparative Fit Indices in Structural Models. *Psychological Bulletin,* 107, 238-246.

Bentler, P.M. and Bonnett, D.G., 1980. Significance Test and Goodness of Fit in the Analysis of Covariance Structures. *Psychological Bulletin,* 88, 588-606.

Berry, L..L., 1995. Relationship marketing of services— growing interest, emerging perspectives. *Journal of the Academy of Marketing Science,* 23, 236-245.

Bettman, James R., 1973. Perceived Risk and Its Components: A Model and Empirical Test. *Journal of Marketing Research*, 10 (May), 184-190.

Bigley, G. A. and Pearce, J. L., 1998. Straining for Shared Meaning in Organization Science: Problems of Trust and Distrust. *Academy of Management Review*, 23 (3), 405-421.

Blau P.M., 1964. *Exchange and power in social life.* New York: Wiley.

Borgatta, E.F., Kercher, K., and Stull, D.E., 1986. A Cautionary Note on the Use of Principal Components Analysis. *Sociological Methods and Research*, 15, 160-168.

Boudreau, M., Gefen, D. and Straub, D., 2001. Validation in IS research: A state-of-the-art assessment. *MIS Quarterly,* 25(1) 1-24.

Boulding, W. and Kirmani, A., 1993. A consumer-side experimental examination of signaling theory: do consumers perceive warranties as signals of quality?, *Journal of Consumer Research*, 20 (1), 111-123.

Bowley, A.L., 1948. *Elements of Statistics.* London: Staples.

Boyle, R., & Bonacich, P., 1970. The development of trust and mistrust in mixed-motive games. *Sociometry.* 33, 123- 139.

Brace, I., 2004. *Questionnaire Design: How to Plan, Structure and Write Survey Material For Effective Market Research,* London: Kogan Page.

Brown, T. A. 2006. *Confirmatory Factor Analysis for Applied Research.* New York: The Guilford Press.

Brown, M., and Muchira, R., 2004. Investigating the Relationship between Internet Privacy Concerns and Online Purchase Behavior. *Journal of Electronic Commerce Research,* 5 (1), 62-70.

Browne, M. W. and Cudeck, R., 1993. Alternative ways of assessing model fit. *In:* Bollen, K.A. and Long, J.S., ed. *Testing Structural Equation Models.* Newbury Park, CA: Sage, 445-455.

Bruce, I., 2004. *Questionnaire Design: How to Plan, Structure and Write Survey Material for Effective Market Research.* London & Stirling, VA: Kogan Page

Bryman, A. 2004. *Social Research Methods.* 2nd ed. New York: Oxford University Press.

Bryman, A. and Bell, E., 2007. *Business Research Methods.* 2nd ed. New York: Oxford University Press.

Brynjofsson, E. and Smith, M.D. 2000. Frictionless Commerce? A Comparison of Internet and Conventional Retailers. *Management Science*, 46 (4), 563-585.

Burke, P.J. and Stets, J.E., 1999. Trust and Commitment through Self-Verification. *Social Psychology Quarterly*, 62 (4), 347-360

Burrell, G. and Morgan, G. 1979. *Sociological Paradigms and Organizational Analysis.* London: Heinemann.

Butler, J.K., 1991. Toward Understanding and Measuring Conditions of Trust: Evolution of a Conditions of Trust Inventory. *Journal of Management,* 17, 643-663.

Butler, J. K., and Cantrell, R.S., 1984. A Behavioral Decision Theory Approach to Modelling Dyadic Trust in Superiors and Subordinates. *Psychological Reports*, 55, 19-28.

Byrne, B. M., 2001. *Structural Equation Modelling with AMOS: Basic Concepts, Applications, and Programming*, New Jersey: Lawrence Erlbaum Associates, Inc.

Byrne, B. M., Shavelson, R. J., and Muthén, B., 1989. Testing for the Equivalence of Factor Covariance and Mean Structures: The Issue of Partial Measurement Invariance. *Journal of Educational Psychology,* 88, 215-228.

Cavoukian, A. and Hamilton, T.J. 2002. *Privacy Payoff: How Successful Businesses Build Consumer Trust,* New York: McGraw Hill Ryerson Limited.

Chaudhuri, A. and Holbrook, M. B., 2001. The Chain of Effects from Brand Trust and Brand Effect to Performance: The Role of Brand Loyalty. *Journal of Marketing,* 65, 81-93.

Chen, C., 2007. *Consumer Trust in an E-Retailer: An Integrative Model Directed Toward Customer.* Thesis (PhD). The University of Arizona, Arizona.

Chen, C., 2004. *An Investigation of Significant Factors Affecting Consumer Trust in E-Commerce.* Thesis (PhD). University of Nevada, Las Vegas.

Chen S. and Dhillon, G. S., 2003. Interpreting Dimensions of Consumer Trust in E-Commerce. *Information Technology &* Management, 4, 303-318.

Chen, Yu-Hei and Barnes, S., 2007. Initial Trust and Online Buyer Behaviour. *Industrial Systems & Data Systems,* 107 (1), 21-36.

Chen, Yu-Wen, 2006. *Factors that affect Online Consumer Trust in Taiwan.* Thesis (PhD). Lynn University.

Cheung, C.M.K. and Lee, M.K.O., 2001. Trust in Internet Shopping: Instrument Development & Validation Through Classical and Modern Approaches. *Journal of Global Information Management,* 9 (3), 23-35.

Chepaitis, E.V., 2002. E-Commerce and the Information Environment in an Emerging Economy: Russia at the Turn of the Century. *In:* P.C. Palvia, S.C.J. Palvia, and E.M. Roche (eds.), *Global Information Technology and Electronic Commerce: Issues for the New Millennium.* Ivy League Publishing, Limited, 53–72.

Chiles, T.H. and McMackin, J.F., 1996. Integrating variable risk preferences, trust, and transaction cost economics. *Academy of Management Review*, 21(1): 73-99.

Chin, W. W., 1998. Issues and Opinion on Structural Equation Modelling. *MIS Quarterly*, 22 (1), 7-16

Choudhury, M. M., 2006. Trust and its Role in E-Commerce. *In:* S.S. Simelane and A. Badroodein, ed. *Education and Development in the Commonwealth: Comparative Perspectives.* UK: Commonwealth Scholarship Commission, 116-123.

Choudhury, M. M., Islam, A. B. M. and Islam, R. I., 2000. *E-Commerce: A Case Study of Some Selected Companies in Bangladesh.* In: First Annual Bangladesh International Business and Information Technology Symposium (BIBITS) North South University, Bangladesh & Indiana University of Pennsylvania, U.S.A., Dhaka, Bangladesh.

Choudhury, M. M. and Tsinopoulos, C. D. 2007. *An interplay of trust and risk in e-commerce.* In: Connecting Theory into Practice, 10th Annual Conference, 3-5 September 2007, Queens University Belfast, Northern Ireland.

Churchill, G.A., 1979. A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16 (1), 64-73.

Cochran, W.G., 1977. *Sampling Techniques.* 3rd ed. New York: John Wiley & Sons.

Coleman, J.S., 1990. *Foundations of Social Theory,* Harvard University Press, Cambridge, MA.

Collis, J. and Hussey, R. 2003. *Business Research: A Practical Guide for Undergraduate and Postgraduate Students.* 2nd ed. New York: Palgrave Macmillan.

Cook, J., and Wall, T., 1980. New work attitude measures of trust, organizational commitment and personal need nonfulfillment. *Journal of Occupational Psychology,* 53 (1), 39-52.

Corbitt, B.J. Thanasankit, T. and Yi, H., 2003. Trust and E-Commerce: A Study of Consumer Perception. *Electronic Commerce Research and Applications*, 2, 203-215.

Crespi, I., 1965. *Attitude Research.* Chicago, ILL: American Marketing Association.

Crosby, L.A., Evans, K.R., and Cowles, D. 1990. Relationship quality in services selling: an interpersonal influence perspective. *Journal of Marketing,* 54 (3), 68–81.

Culnan, M.J., and Armstrong, P.K., 1999. Information privacy concerns, procedural fairness, and impersonal trust: An empirical investigation. *Organization Science*, 10 (1), 104-115.

Cummings, L.L. and Bromiley, P. The Organizational Trust Inventory (OTI): Development and Salvation. *In:* Kramer, R.M. and Tyler, T.R., ed. *Trust in Organizations.* Thousand Oaks, CA: Sage, 302-330.

Curran, P. J., West, S. G., & Finch, J. F., 1996. The robustness of test statistics to non-normality and specification error in confirmatory factor analysis. *Psychological Methods,* 1 (1), 16-29.

Cyr, D., Hassanein, K.Head, M., and Ivanov, A., 2007. The role of social presence in establishing loyalty in e-Service Environments. *Interacting with Computers*, 19, 45-56.

Czaja, R. and Blair, J. 2005. *Designing Surveys: A Guide to Decisions and Procedures.* 2nd ed. London: SAGE Publications Ltd.

Dabholkar, P. 1994. Incorporating Choice into an Attitudinal Framework: Analyzing Models of Mental Comparison Processes, *Journal of Consumer Research*, 21 (1) 100-118.

Dasgupta, P., 1988. Trust as a commodity. *In*: D. G. Gambetta (Ed.), *Trust:* 49-72. New York: Basil Blackwell.

Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-40.

Davis, F.D., and Kotteman, J.E., 1994. User Perceptions of Decision Support Effectiveness: Two Production Planning Experiments. *Decision Sciences* 25, 57-77.

DeLone, W. H. and McLean, E. R., 2003. The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems,* 19, 9-30.

Deutsch, M., 1960. The effect of motivational orientation upon trust and suspicion. *Human Relations.* 13, 123-140.

Deutsch, M. 1973. *The Resolution of Conflict.* New Haven and London: Yale University Press.

Doney, P.M. and Cannon, J.P., 1997. An Examination of the Nature of Trust in Buyer-Seller Relationships, *Journal of Marketing,* 61 (2), 35-51.

Doney, P.M., Cannon, J.P., and Mullen, M., 1998. Understanding the Influence of National Culture on the Development of Trust. *Academy of Management Review*, 23 (3), 601-620.

Dillman, D. A. 1978. *Mail and Internet Surveys: The Total Design Method.* New York: Wiley-Interscience.

Dillman, D. A. 2007. *Mail and Internet Surveys: The Tailored Design Method.* 2nd ed. New Jersey: John Wiley & Sons Inc.

Dillman, D., Sangster, R., Tarnai, J., and Rockwood, T., 1996. Understanding Differences in People's Answers to Telephone and Mail Surveys. *In*: Braverman, M. and Slater, J. ed. *Advances in Survey Research.* San Francisco: Jossey-Bass, 45-62.

Dittmar, H., Long, K., and Meek, R., 2004. Buying on the Internet: Gender Differences in On-line and Conventional Buying Motivations. *Sex Roles*, 50 (5/6), 423-444.

Doney, P. M., Cannon, J. P., and Mullen, M. R., 1998. Understanding the Influence of National Culture on the Development of Trust. *Academy of Management Review,* 23 (3), 601-620.

Donthu, N. and Garcia, A., 1999. The Internet Shopper. *Journal of Advertising Research,* 39 (3), 52-58.

Dutton, P., 2000. Trust Issues in E-commerce. Available from: http://www.sqi.gu.edu.au/wic2000/docs/ Dutton.pdf. [Accessed 12 December 2004].

Dutton, W. H. and Helsper, E.J., 2007. *The Internet in Britain*, Oxford Internet Institute. Available from: www.oii.ox.ac.uk/research/oxis/OxIS2007_Report.pdf. [Accessed 7 July 2008].

Dwyer, F.R., Schurr, P.H., and Oh, S., 1987. Developing buyer-seller relationships. *Journal of Marketing*, 51, 11-27.

Elliot, S. and Fowell, S., 2000. Expectations versus reality: a snapshot of consumer experiences with internet retailing. *International Journal of Information Management*, 20, 323-336.

Farris, G., Senner, E., & Butterfield, D., 1973. Trust, Culture, and Organizational Behavior. *Industrial Relations.* 12, 144- 157.

Ferber, R., 1977. Research by Convenience. *The Journal of Consumer Research*, 4 (1), 57-58.

Field, A. 2005. *Discovering Statistics using SPSS.* London: SAGE Publications Ltd.

Fishbein, M., and Ajzen, I., 1975. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research,* Boston: Addison Wesley.

Fornell, C. and Larcker, R. T., 1981. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research,* 18 (February), 39-50.

Fowler, F. J., Jr., 1993. *Survey Research Methods.* Newberry Park: Sage Publications.

Fox, R.J., Crask, M. R., and Kim, J., 1988. Mail Survey Response Rate: A Meta-Analysis of Selected Techniques for including Response. *Public Opinion Quarterly,* 52, 467-491.

Franzak, F., Pitta, D., and Fritsche, S., 2001. Online relationships and the Consumer's right to privacy. *Journal of Consumer Marketing,* 18, 631-641.

Frederick, R.F.a.S., P., 2000. E-Loyalty: Your Secret Weapon on the Web. *Harvard Business Review,* 78 (4), 105-113.

Friedland, N., 1990. Attribution of control as a determinant of cooperation in exchange interactions. *Journal of Applied Social Psychology.* 20: 303-320.

Frost. T., Stimpson. D.V., and Maughan. M.R.C., 1978. Some correlates of trust. *Journal of Psychology.* 99, 103- 108.

Fukuyama, F., 1985. *Trust: The Social Virtues and Creation f Prosperity.* New York: The Free Press.

Fulk, J., W., S.C., Schmitz, J., and Power, G.J., 1987. A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14 (5), 520-552.

Gabarro, J., 1978. The development of trust, influence, and expectations. *In:* A. G. Athos & J. J. Gabarro ed., *Interpersonal behavior: Communication and understanding in relationships,* Englewood Cliffs, NJ: Prentice Hall, 290-303.

Gambetta, D. G., 1988. Can we trust trust? *In:* Gambetta, D.G. ed. *Trust*. New York: Basil Blackwell, 213-237.

Ganesan S., 1994. Determinants of long-term orientation in buyer–seller relationships. *Journal of Marketing,* 58 (2), 1–19.

Garbarino, E. and Johnson, M.S., 1999. The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing*, 63, 70-87.

Garbarino, E. and Strahilevitz, M., 2004. Gender differences in the perceived risks of buying online and effects of receiving a site recommendation. *Journal of Business Research*, 57 (7), 768-775.

Garfinkel, H., 1963. A Conception of Experiments with Trust as a condition of Stable Concerted Actions. *In:* O.J. Harvey, ed. *Motivation & Social Interaction,* New York: Ronald Press, 187-238.

Garson, G. David, n.d.. Validity, from *Statnotes: Topics in Multivariate Analysis.* Available from: http://www2.chass.ncsu.edu/garson/pa765/statnote.htm [Accessed: 05/11/2007].

Gefen, D., 1997. *Building Users' Trust in Freeware Providers and the Effects of this Trust on Users' Perceptions of Usefulness, Ease of Use and Intended Use,* Unpublished Doctoral Dissertation, Georgia State University.

Gefen, D., 2000. E-commerce: The Role of Familiarity and Trust. *OMEGA*, 28(6), 725-737.

Gefen, D., 2002. Nurturing Clients' Trust to Encourage Engagement Success During the Customization of ERP Systems. *Omega,* 30 (4), 287-299.

Gefen D, Karahanna E, and Straub D.W., 2003. Trust and TAM in online shopping: an integrated model. *MIS Quarterly*, 27(1), 51–90.

Gefen, D. and Keil, M., 1998. The Impact of Developer Responsiveness on Perceptions of Usefulness and Ease of Use: An Extension of the Technology Acceptance Model. *The DATA BASE for Advances in Information Systems,* 29 (2), 35-49.

Gefen, D., and Silver, M., 1999. Lessons Learned from the Successful Adoption of an ERP System. *Proceedings of the Proceedings of the 5th International Conference of the Decision Sciences Institute,* Athens, Greece, 1999, 1054-1057.

Gefen, D. and Straub, D., 2000. The Relative Importance of Perceived Ease-of-Use in IS Adoption: A Study of E-Commerce Adoption. *Journal of the Association for Information Systems*, 1(8), 1-30.

Gefen, D., Straub, D., and Boudreau, M., 2000. Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communications of AIS,* 4 (7), 1-78

Gefen, D. and Straub, D., 2003. Managing User Trust in B2C E-Service. *e-Service Journal*, 2(2), 7-24.

Gefen, D. and Straub, D. W. 2004. "Consumer Trust in B2C e-Commerce and the Importance of Social Presence: Experiments in e-Products and e-Services", *Omega: The International Journal of Management Science*, 32, 407- 424.

Geyskens, I., Steenkamp, J.B.E.M., and Kumar, N., 1998. Generalizations about trust in Marketing Channel Relationships using Meta-Analysis. *International Journal of Marketing,* 15, 223-248.

Giffin, K., 1967. The Contribution of Studies of Source Credibility to a Theory of Interpersonal Trust in the Communication Process. *Psychological Bulletin,* 68 (2), 104-1 20.

Gill, J. and Johnson, P. 2002. *Research Methods for Business*. 3rd ed. London: Sage Publications.

Good, D., 1988. Individuals, interpersonal relations, and trust. *In:* Gambetta, D.G, ed. Trust. New York: Basil Blackwell, 31–47.

Goodwin, C., 1991. Privacy: Recognition of a Consumer Right. *Journal of Public Policy Marketing*, 10, 149, 166.

Gorsuch, R.L., 1983. *factor Analysis*, Hillsdale, NJ: Lawrence Erlbaum Associates.

Gorsuch, R.L., 1990. Common Factor Analysis Versus Component Analysis: Some Well and Little Known facts. *Multivariate Behavioral Research*, 25, 33-39.

Granovetter, M.S., 1985. Economic Action and Social Action. *American Journal of Sociology*, 95, 491-510.

Guadagnoli, E. and Velicer, W., 1998. Relation of Sample Size to the Stability of Component Patterns. *Psychological Bulletin*, 103, 265-275.

Guba, E. and Lincoln, Y., 1994. Competing Paradigms in Qualitative Research. In: Denzin, N.K. and Lincoln, Y.S., eds. *Handbook of Qualitative Research*. London: Sage, 105-117.

Gulati, R., 1995. Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances. *Academy of Management Journal*, 38 (1), 85-112.

Gwinner, K.P., Gremmler, D.D. and Bitner, M.J., 1998. Relational benefits in services industries: the customer's perspective. *Journal of the Academy of Marketing Science*, 26 (2), 101-114.

Ha, H., 2004. Factors Influencing Consumer Perceptions of Brand Trust Online. *Journal of Product & Brand Management,* 13 (5), 329-342.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., and Tatham, R.L. 2006. *Multivariate Data Analysis.* 6th ed. New Jersey: Prentice Hall.

Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C., 1998. *Multivariate Data Analysis.* 5th ed. New Jersey: Prentice Hall.

Hawk, S, 2004. A Comparison of B2C E-Commerce in Developing Countries. *Electronic Commerce Research,* 4, 181-199.

Hart. K.M., Capps. H.R., Cangemi, J.P., and Caillouet, L.M., 1986. Exploring organizational trust and its multiple dimensions: A case study of General Motors. *Organization Development Journal.* 4(2), 31 -39.

Hassanein, K. and Head, M., 2006. The Impact of Infusing Social Presence in the Web Interface: An Investigation Across Different Products. *International Journal of Electronic Commerce*, 10 (2), 31-55.

Heberlein, T. A., and Baumgartner, R. 1978. Factors affecting response rates to mailed surveys: A quantitative analysis of the published literature. *American Sociological Review, 43,* 447-462.

Heider, F., 1958. *The Psychology of Interpersonal Relations*, New York: Wiley.

Heins R. A., 2000. "Market Orientation: Toward an Integrated Framework." *Academy of Marketing Science*, 1-2. Available from: http:www.amsreview.org/articles/heiens01-2000.pdf

Hoag, A. 1998. Measuring Usage and Satisfaction. *D-Lib Magazine.* Available from: www.dlib.org.

Hoffman, D.L., Novak, T.P., and Peralta, M., 1999. Building Consumer Trust in Online Environments: The Case for Information Privacy. *Communications of the ACM*, 42 (4), 80–85.

Hoffman, D.L., Novak, T.P., and Schlosser, A.E., 2000. The Evolution of the Digital Divide: How Gaps in the Internet access may Impact Electronic Commerce. *Journal of Computer-Mediated Communication,* 5 (3). Available from http://jcmc.indiana.edu/vol5/issue3/hoffman.html [Accessed: September 2008].

Hosmer, L., 1995. Trust: the connecting link between organizational behavior and philosophical ethics, *Academy Management Review*, 20(2), 370–403.

Hovland, C.I., Janis, I.L., and Kelley, H.H., 1953. *Communications and Persuasions.* New Haven, CT: Yale University Press.

Howell, J., Miller, P., Park, H. H., Sattler, D., Schack, T., Spery, E., Widhalm, S., and Palmquist, M., 2005. *Reliability and Validity.* Writing@CSU. Colorado State University Department of English. Available from: http://writing.colostate.edu/guides/research/relval/ [Accessed 5th November 2007].

Hu, L. and Bentler, P. M., 1999. Covariance Structure Analysis: Conventional Criteria Versus New Alternative. *Structural Equations Modeling*, 6 (1), 1-55.

Hutcheson, G, and Sofroniou, N. 1999. *The Multivariate Social Scientist*, London: Sage.

Introna, L.D. and Pouloudi, A. 1999. Privacy in the information age: stakeholders, interests and values. *Journal of Business Ethics,* 22 (1), 27-38.

Ippolito, P. M., 1990. Bonding and non-bonding signals of product quality. *Journal of Business,* 63 (1), 41-60.

Jarvenpaa, S. L., Knoll, K., and Leidner, D.E., 1998. Is Anybody Out There? Antecedents of Trust in Global Virtual Teams," *Journal of Management Information Systems*, 14 (4), 29-64.

Jarvenpaa, S.L., Tractinsky, N., and Vitale, M., 2000. Consumer Trust in an Internet Store. *Information Technology and Management*, 1, 45-71.

Jarvenpaa, S. L. and Todd, P.A., 1977. Consumer reaction to electronic shopping on the World Wide Web, *International Journal of Electronic Commerce*, 1(2), 59-88.

Jarvenpaa, S. L., and Tractinsky, N., 1999. Consumer Trust in an Internet Store: A Cross-Cultural Validation. *Journal of Computer Mediated Communication,* 5 (2), 1-35.

Jennex, M.E., Amoroso, D., and Adelakun, O., 2004. E-Commerce Infrastructure Success factors for Small Companies in Developing Countries. *Electronic Commerce Research,* 4, 263-286.

Johnson, D.S., and Grayson, K., 2000. Sources and dimensions of trust in service relationships. *In:* T. A. Swartz and D. Iacobucci ed., *Handbook of Services Marketing & Management.* Thousand Oaks, CA: Sage Publications, Inc., 357-370.

Johnson-George, C. and Swap, W., 1982. Measurement of specific Inter-personal Trust: Construction and Validation of a scale to assess trust in a specific other. *Journal of Personality and Social Psychology,* 43, 1306-1317.

Jones, A.P., James, L.R., and Bruni, J.R., 1975. Perceived leadership behavior and employee confidence in the leader as moderated by job involvement. *Journal of Applied Psychology.* 60, 146-149.

Joreskog, K.G. and Sorbom, D., 1996. *LISREL 8 Structural Equation Modeling.* Chicago, IL: Scientific Software International.

Joreskog, K.G. and Sorbom, D., 1994. *LISREL 8.12i and PRELIS 2.12i for Windows.* IL: Scientific Software International.

Joreskog, K.G. and Sorbom, D., 1989. *LISREL 7: A Guide to the Programs and Applications.* 2nd ed. IL: SPSS.

Karavas-Doukas, E., 1996. Using Attitude Scales to Investigate Teachers' Attitude to the Communication Approach. *ELT Journal*, 50 (9), 187-198.

Kaiser, H.F. 1974. Little Jiffy, Mark IV. *Educational and Psychology Measurement*, 34, 111-117.

Kee, H.W. and Knox, R.E, 1970. Conceptual and Methodological Consideration in the Study of Trust & Suspicion. *Journal of Conflict Resolution,* 14 (3), 357-366.

Keen, P.G.W. 1997. "Are You Ready For 'Trust' Economy?" *ComputerWorld,* 31(16), 80.

Kehoe, C. and Pitkow, J., 1996. Surveying the Territory: GVU's Five WWW User Surveys. *The World Wide Web Journal,* 1 (3). Available from: http://www.cc.gatech.edu.gvu/user_surveys/papers/w3j.html [Accessed 9 March 2002].

Kenny, D.A. and McCoach, D.B., 2003. Effect of the number of Variables on Measures of Fit in Structural Equations Modeling. *Structural Equations Modeling*, 10 (3), 333-351.

Kim, E., 2003. *Factors Impacting Customers' Trust in E-Businesses: An Empirical Study of Customers' Initial Trust in E-Business.* Thesis (PhD). Southern Illinois University, Carbondale.

Kim, E.Y. and Kim, Y.K. 2004. Predicting Online Purchase Intentions for Clothing Products. *European Journal of Marketing*, 38 (7), 883 -897.

King, R.L., 1965. The Marketing Concept, *In:* G. Schwartz ed. *Science in Marketing*, New York, Wiley, 70–79.

Kline, P., 1999. *The Handbook of Psychological Testing,* 2nd ed. London: Routledge.

Kline, R. B., 2005. *Principles and Practice of Structural Equation Modeling.* 2nd ed., New York: Guilford.

Kline, R. B., 1998. *Principles and Practice of Structural Equation Modeling.* New York: Guilford.

Kohli, A. and Jaworski, B.J., 1990. Market orientation: the construct, research proposition, and managerial implications. *Journal of Marketing*, 54 April, 1-18.

Kolesar, M.B. and Galbraith, R.W., 2000. A services marketing perspective on e-retailing: implications for e-retailers and directions for further research. *Internet Research*, 10 (5), 424-38.

Kollock, P., 1999. The Production of Trust in Online Markets. *Advances in Group Processes*, 16, 99-123.

Korsgaard, M.A., Schweiger, D.M., and Sapienza, H.J., 1995. Building Commitment, Attachment, and Trust in Strategic Decision-Making Teams: The Role of Procedural Justice," *Academy of Management Journal,* 38 (1), 60-84.

Koufaris, M. and Hampton-Sosa, W., 2004. The Development of Initial Trust in an Online Company by New Customers. *Information & Management*, 41, 377-397.

Kumar, N. and Benbasat, I., 2002. Para-Social Presence: A Reconceptualization of 'Social Presence' to Capture the Relationship between a Website and Her Visitors. In: Proceedings of the 35th Annual Hawaii International Conference on System Sciences.

Kumar, N., Scheer, L. K., and Steenkamp, J.-B. E. M., 1995. The Effects of Supplier Fairness on Vulnerable Resellers. *Journal of Marketing Research,* 17, February, 54-65.

Lai, Chi-Shiun., Chen, Chun-Shou, and Lin, Pei-June, 2007. The Effects of Service Quality on Customer Relational Benefits in Travel Website. *In:* PICMET 2007 Conference on Management of Converging Technologies, 5-9 August 2007, Portland, Oregon, 1133 – 1140.

Langer, E. J., 1975. The Illusion of Control. *Journal of Personality and Social Psychology* 32, 311-328.

Larzelere, R. E., and Huston, T. L., 1980. The Dyadic Trust Scale: Toward Understanding Inter-personal Trust in Close Relationships. *Journal of Marriage and the Family,* August, 595-604.

Lauer, T.W. and Deng, X. 2007. Building Online Trust through Privacy Practices. *International Journal of Information Security*, 6, 323-331.

Lawrence K.L., 1997. Factors Inhibiting the Utilisation of Electronic Commerce Facilities in Tasmanian Small-to-Medium Sized Enterprises *8th Australasian Conference on Information Systems,* 587-597.

Layder, D., 1993. *New Strategies in Social Research.* Cambridge: Polity.

Lee, M.K.O. and Turban, E., 2001. A Trust Model for Consumer Internet Shopping. *International Journal of Electronic Commerce*, 6 (1), 75-91.

Lewicki, R. J., & Bunker, B. B., 1995. Trust in relationships: A model of development and decline. *In:* B. B. Bunker & J. Z. Rubin, ed. *Conflict, Cooperation, and Justice.* San Francisco, CA: Jossey-Bass, 133-173.

Lewis, J. D., and Weigert, A.J., 1985a. Social Atomism, Holism, and Trust. *The Sociological Quarterly*, 26, 455-471.

Lewis, J. D., and Weigert, A., 1985b. Trust as a Social Reality. *Social Forces*, 63 (4), 967-985.

Liao, Z. and Cheung, M.T., 2001. Internet-based e-shopping and consumer attitudes: An Empirical Study. *Information and Management,* 38, 299-306.

Lieberman, J.K., 1981. *The Intelligent Society.* New York: Basic Books.

Liebermann, Y. and Stashevsky, S., 2002. Perceived Risks as barriers to Internet and e-commerce usage. *Qualitative Market Research: An International Journal,* 5 (4), 291-300.

Likert, R., 1932. A Technique for Measurement of Attitudes. *Archives of Psychology,* 19, 44-53.

Lim, N., 2003. Consumers' Perceived Risk: Sources versus competences. *Electronic Commerce Research and Applications,* 2(3), 216-228.

Lin, H.F., 2007a. The Impact of Website Quality Dimensions on Customer Satisfaction in the B2C E-Commerce Context. *Total Quality Management,* 18 (4), 363-378.

Lin, H.F., 2007b. The Role of Online and Offline Features in Sustaining Virtual CDommunities: An Empirical Study. *Internet Research,* 17 (2), 119-138.

Little, T.D., Cunnigham, W.A., Shahar, G., and Widaman, K.F., 2002. To Parcel and Not to Parcel: Exploring the Question, Weighing the Merits. *Structural Equation Modeling,* 9, 151-173.

Liu, C. Marchewka, J.T., Lu, J., and Yu, C., 2005. Beyond Concern— A Privacy-trust-behavioral intention model of Electronic Commerce. *Information & Management,* 42 (2), 289-304.

Loiacono, E.T., 2000. WEBQUAL: A Web site quality instrument. Thesis (PhD), University of Georgia, Athens, George.

Lohse, G.L. and Spiller, P., 1998. Electronic shopping. *Communications of ACM,* 41(7), 81-9.

Lombard, M., and Ditton, T., 1997. At the Heart of It All: The Concept of Presence. *Journal of Computer Mediated Communication,* 3 (2). Available from: http://www.Ascusc.org/jcmc/vol3/issue2/Lombard.html

Luhmann, N., 1979. *Trust and Power,* John Wiley and Sons, London. Translated by Howard Davis, John Raffan and Kathryn Rooney. Avon, UK: Pitman Press.

Luo, X., 2002 Trust production and privacy concerns on the Internet. A framework based on relationship marketing and social exchange theory. *Industrial Marketing Management,* 31, 111-118.

MacCallum, R.C., Roznowski, M., Mar, C., and Reith, J. 1994. Alternative Strategies for Cross Validation of Covariance Structure Models. *Multivariate Behaviural Research,* 29, 1-32.

MacGregor, R.C. and Bunker, D.J., 1996. Does Experience with IT Vendors/Consultants Influence Small Business Computer Education Requirements. *Association of Information Systems Proceedings of the Americas Conference on Information Systems,* Phoenix, Arizona. 31-33.

MacGregor, R.C., Bunker, D.J. and Waugh, P., 1998. Electronic Commerce and Small/Medium Enterprises (SME's) in Australia: An Electronic Data Interchange (EDI) Pilot Study, *Proceedings of the 11th International Bled Electronic Commerce Conference,* Slovenia, June.

Malhotra, N.K., 1999. *Marketing Research: An Applied Orientation.* 3rd ed. New Jersey: Prentice Hall.

Maltby, A., Chudry, F., and Wedande, G., 2003. Cyber dudes and cyber babes: Gender differences and internet financial services. *Journal of Financial Services Marketing*, 8(2), 152-165.

March, J. and Shapira, Z., 1987. Managerial perspectives on risk and risk taking. *Management Science,* 78, 340-349.

Marsh, H.W. and Balla J., 1994. Goodness-of-fit in CFA: The Effects of Sample Size and Model Parsimony. *Quality and Quantity*, 28 (May), 185-217.

Marsh, H.W., Hau, K. T., and Wen, Z., 2004. In Search of Golden Rules: Comment on Hypothesis Testing Approaches to Setting Cuttoff Values for Fit Indexes and Dangers in

Overgeneralizing Hu and Bentler's (1999) Findings. *Structural Equation Modeling*, 11 (3), 320-341.

Marsh, H.W., Hau, K. T., Balla, J. R., and Grayson, D, 1988. Is more Ever Too Much? The Number of Indicators per factors in Confirmatory Factor Analysis. *Multivariate Behavioral Research*, 33, 181-222.

Mayer, R.C. and Davis, J.H., 1999. The Effect of the Performance Appraisal System on Trust in Management: A Field Quasi-Experiment. *Journal of Applied Psychology,* 84 (1), 123-136.

Mayer, R.C., Davis, J.H. and Schoorman, F.D., 1995. An Integrative Model of Organizational Trust. *Academy of Management Review,* 20 (3), 709-734.

McAllister, D.J., 1995. "Affect- and Cognition-Based Trust as Functions for Interpersonal Cooperation in Organizations", *Academy of Management Journal*, 38(1), 24–59.

McCullough, D, 1998. Web-based Market Research: The Dawning of a New Era. *Direct Marketing*, 61 (8), 36-39.

McCole, P., 2001. *Dimensionalising Trust in Internet Buyer Behaviour.* Thesis (PhD). University of Ulster.

McFall, L., 1987. Integrity. *Ethics.* 98, 5-20.

McGraw, H. IV, 1999. Managing the Privacy Revolution. *Direct Mark,* 61 (12), 36-38, 60.

McKnight, D.H. and Chervany, N.L., 2002. What trust means in E-Commerce Customer Relationship: An interdisciplinary Conceptual Typology. *International Journal of Electronic Commerce,* 6 (2), 35-59.

McKnight, D.H., Choudhury, V., and Kacmar, C., 2002a. Developing and Validating Trust Measures for E-Commerce: An Integrative Typology, *Information Systems Research,* 13 (3), 334-359.

McKnight, D.H., Choudhury, V., and Kacmar, C., 2002b. The impact of initial consumer truston intentions to transact with a website: A Trust Building Model, *Journal of Strategic Information Systems,* 11, 297-323.

McKnight, D. H., Choudhury, V., and Kacmar, C. 2000. Trust in E-Commerce Vendors: A Two-Stage Model. *In:* W. Orlikowski, S. Ang, P. Weill, H. Krcmar, and J. I. DeGross ed., *Proceedings of the 21st International Conference on In formation Systems,* Brisbane, Australia, 2000, 532-536.

McKnight, D.H., Cummings, L. L., and Chervany, N. L., 1998. Initial Trust Formation in New Organizational Relationships. *Academy of Management Review*, 23 (3), 472-490.

McNamara, C.P., 1972. The Present Status of the Marketing Concept, *Journal of Marketing Research*, 36, 50–57.

McPhail, C. and Rexroat, C., 1979. Mead vs. Blumer: The Divergent Methodological Perspectives of Social Behaviourism and Symbolic Interactionism. *American Sociological Review,* 44, 449-467.

Mesquita, L.F., 2007. Starting over when the bickering never ends: Rebuilding aggregate trust among clustered firms through trust facilators. *Academy of Management Review,* 32 (1), 72-91.

Miller, A., 1998. *Strategic Management*, New York: McGraw Hill.

Mishra, A. K. In press. Organizational responses to crisis: The centrality of trust. In R. M. Kramer & T. Tyler (Eds.), *Trust in organizations.* Newbury Park, CA: Sage.

Mishra, J., and Morrissey, M. A., 1990. Trust in Employee/Employer Relationships: A Survey of West Michigan Managers. *Public Personnel Management,* 19 (4), 443-485.

Miyazaki, A.D. and Fernandez, A., 2001. Consumer Perceptions of Privacy and Security Risks for Online Shopping. *The Journal of Consumer Affairs,* 35 (1) 27-44.

Miyazaki, A.D. and Krishnamurty, S., 2002. Internet Seals of Approval: Effects on Online Privacy Policies and Consumer Perceptions. *The Journal of Consumer Affairs*, 36 (1), 28-49.

Moorman C, Deshpande R, and Zaltman G., 1993. Factors affecting trust in market research relationships. *Journal of Marketing,* 57, 81–101.

Moorman, C., Zaltman, G. and Deshpande, R., 1992. Relationships between providers and users of market research: the dynamics of trust within and between organizations. *Journal of Marketing Research*, 29, 314-28.

Morgan, R.M. and Hunt, S.D., 1994. The commitment rust theory of relationship marketing. *Journal of Marketing*, 58, 20-38.

Morris, M.G. and Turner, J.M., 2001. Assessing users' subjective quality of experience with the World Wide Web: an exploratory examination of temporal changes in technology acceptance, *International Journal of Human-Computer Studies,* 54 (6), 877-901.

Mulaik, S.A., 1990. Blurring the Distinction Between Component Analysis and Common Factor Analysis. *Multivariate Behavioral Research*, 25, 53-59.

Mulaik, S.A., 1987. A brief history of the philosophical foundations of exploratory factor analysis. *Multivariate Behavioral Research*, 22, 267-305.

Mulaik, S.A., 1972. The Foundations of Factor Analysis. New York: McGraw Hill.

Mulaik, S.A., James, L. R., Val Alstine, J., Bennet, N., Lind, S., and Stilwell, C. D., 1989 Evaluation of Goodness-of-fit for Structural Equation Models. *Psychological Bulletin*, 105 (March), 430-445.

Mulaik, S.A. and McDonald, R.P., 1978. The Effects of Additional Variables on Factor Indeterminancy in Models with a Single Common Factor. *Psychometrika*, 43, 177-92

Mulaik, S.A. and Millsap, R.E, 2000. Doing the Four-Step Right. *Structural Equation Modeling*, 7, 36-73.

Muthitacharoen, A. and Palvia, P. 2002. "B2B Internet Commerce: A Tale of Two Nations", *Journal of Electronic Commerce Research*, 3(1), 201-210.

Nooteboom, B., 1996. Trust, opportunism and governance: A process and control model. *Organization Studies,* 17 (6), 985-1010.

Narver, J. and Slater, S.F., 1990. The effect of market orientation on business profitability. *Journal of Marketing*, 54 October, pp. 20-35.

North, D.C., 1990. *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press.

Nunnally, J., 1967. *Psychometric Theory.* New York: McGraw Hill.

Nunnally, J., 1978. *Psychometric Theory.* 2nd ed. New York: McGraw Hill.

Oppenheim, A. N. (1992). *Questionnaire Design and Attitude Measurement.* New York: Pinter Publishers.

Ostlund, L.E., 1973. Perceived innovation attributes as predictors of innovativeness. *Journal of Consumer Research,* 1 (Sept.), 23-29.

Pallant, J., 2007. *SPSS: Survival Manual.* 3rd ed. England: Open University Press.

Park, C.H. and Kim, Y.G, 2003. Identifying Key Factors Affecting Consumer Purchase Behavior in an Online Shopping Context, *International Journal of Retail and Distribution* Management, 31 (1), 16-29.

Patterson, P.G. and Smith, T., 2001. Relationship benefits in service industries: a replication in a Southeast Asian context. *Journal of Services Marketing,* 15 (6), 425-443.

Pavlou, P.A., 2002. What Drives Electronic Commerce? A Theory of Planned Behavior Perspective. *Best Paper Proceedings of the Academy of Management Conference*, Denver, CO, August.

Pavlou, P.A., 2003. Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce,* 7 (3), 101-134.

Pavlou, P.A., Liang H., and Xue, Y., 2007. Understanding and mitigating uncertainty in online exchange relationships: A Principal-Agent Perspective. *MIS Quarterly,* 31 (1), 105-136

Pavlou, P. A. and Chai, L.. 2002. What Drives Electronic Commerce across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behavior, *Journal of Electronic Commerce Research,* 3(4), 241-245, 248-249.

Pavlou, P. A., and Gefen, D., 2002. Building Effective Online Auction Marketplaces with Institution-based Trust. *Proceedings of the 23rd Inter-national Conference on Information Systems,* L. Applegate, R. Galliers, and J. I. DeGross (eds.), Barcelona, Spain, 667-675.

Peterson, R.A., 1994. A Meta-Analysis of Cronbach's Coefficient Alpha. *Journal of Consumer Research,* 21(Sept.), 381-391.

Pew Research Center, 1998. *The Internet news audience goes ordinary.* Available from: http://208.240.91.18/tech98sum.htm

Phillips, E.M. and Pugh, D.S. 2000. *How to get a PhD: A Handbook for Students and their Supervisors.* 3rd ed. Open University Press: Buckingham-Philadelphia.

Phillips, E.M. and Pugh, D.S., 2005. *How to get a PhD: A Handbook for Students and their Supervisors.* 4th ed. Open University Press: Buckingham-Philadelphia.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., and Podsakoff, N.P., 2003. Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology,* 88 (5), 879-903

Power, D.J. and Sohal, A.S., 2002. Implementation and Usage of Electronic Commerce in Managing the Supply Chain: A Comparative Study of Ten Australian Companies *Benchmarking: An International Journal,* 9 (2), 190-208.

Quelch, J .A. and Klein, L.R. 1996. "The internet and international marketing", Sloan *Management Review*, 60/75.

Raab, C.D., and Bennett, C.J., 1998. "The distribution of privacy risks: Who needs protection?", *The Information Society*, 14(4), 253-262.

Ratnasinghgham, P 1998. The Importance of Trust in Electronic Commerce. *Internet Research: Electronic Networking Applications and Policy*, 8 (4), pp.313-321.

Ravald, A. and Grönroos, C., 1996. The Value Concept and Relationship Marketing. *European Journal of Marketing*, 30 (2), 19-30.

Raymond, L., 2001. Determinants of Web Site Implementation in Small Business. *Internet Research: Electronic Network Applications and Policy,* 11 (5), 411-422.

Reimenschneider, C.K. and Mykytyn, P.P., Jr., 2000. What Small Business Executives Have Learned about Managing Information Technology, *Information & Management.* 37, 257-267.

Remenyi, D., Williams, B., Money, A., and Swartz, E. 1998. *Doing Research in Business and Management: An Introduction to Process and Method,* London, Sage.

Rempel, J. K., Holmes, J. G., and Zanna, M. P., 1985. Trust in Close Relationships," *Journal of Personality and Social Psychology*, 49 (1), 95-112.

Ribbink, D., Allard, C.R., van Riel, V.L., and Streukens, S., 2004. Comfort Your Online Customer: Quality, Trust and Loyalty on the Internet. *Managing Service Quality,* 14 (6), 446-456.

Robson, C., 2002. *Real World Research.* 2nd ed. Oxford: Blackwell.

Rodgers, S. and Harris, M.A., 2003. Gender and e-commerce: An exploratory study. *Journal of Advertising Research,* 43 (3), 322-329.

Rogers, E.M., 1995. *Diffusion of Innovations*, 3rd ed.The Free Press, New York.

Rogers, E.M., 1995. *Diffusion of Innovations*, 4th ed.The Free Press, New York.

Romano, N.C., Bauer, C., Chen, H., and Nunamaker, J. F., 2000. Quantifying Qualitative dayta for Electronic Commerce Attitude Assessment and Visualization. *Working Paper.* Available from: http://dlist.sir.arizona.edu/509/01/romano.pdf [Accessed 7 July, 2006].

Rosen, B., and Jerdee, T.H., 1977. Influence of subordinate characteristics on trust and use of participative decision strategies in a management simulation. *Journal of Applied Psychology.* 62, 628-631.

Rotter, J.B., 1967. A new scale for the measurement of interpersonal trust. *Journal of Personality,* 35, 651-665.

Rotter, J.B., 1971. Generalized expectancies for interpersonal trust. *American Psychologist,* 26, 443-452.

Rousseau D.M., Sitkin, S.B., Burt, R.S., and Camerer, C., 1998. Not so different after all: A cross-discipline view of trust. *Academy of Management Review,* 23 (3), 393-404.

Rowley, J. 1996. Retailing and shopping on the Internet. *International Journal of Retail & Distribution Management*, 24 (3), 26-37.

Ruppel, C, Underwood-Queen, L. and Harrington, S. J. 2003, "E-Commerce: the Role of Trust, Security, and Type of E-Commerce Involvement", *e-Service Journal*, 2(2), 25-45.

Ruyter, Ko de, Wetzels, M. amd Kleijnen, M., 2001, "Customer Adoption of E-Service: An Experimental Study", *International Journal of Service and Industry* Management, 12 (2), 184-207.

Salant, P. and Dillman, D. A., 1994. *How to Conduct your Own Survey.* John Wiley & Sons Inc., Canada.

Salisbury, W.D., Pearson, R.A., Pearson, A.W., and Miller, D.W., 2001. Perceived Security and World Wide Web Purchase Intention. *Industrial Management & Data Systems,* 101, 165-176.

Salmon, M.H., 1989. *Introduction to Logic and Critical Thinking.* San Diego, CA: Brace and Jovanovich.

Sanchez-Franco, M. J., 2006. Exploring the influence of gender on the web usage via partial least squares. *Behaviour and Information Technology*, 25 (1), 19-36.

Saunders, M., Lewis, P., and Thornhill, A. 2007. *Research Methods for Business Students*. 4th ed. England: Pearson Education Ltd.

Schlenker, B.R., Helm, B., and Tedeschi, J.T., 1973. The effects of personality and situational variables on behaviour trust. *Journal of Personality and Social Psychology,* 25, 419-427.

Schwab, D. P. 1980. Construct validity in organizational behavior. *In:* B. M. Staw and L. L. Cummings, eds. *Research in Organizational Behavior,* 2. JAI Press, Greenwich, CT, 3-43.

Schiffman, L., Bednall, D., Cowley, E., O'Cass, A. Watson, J., and Kanuk, L. 2001. *Consumer Behaviour,* Prentice-Hall, Englewood Cliffs, NJ, Parson Education, Australia.

Schillewaert, N., Langerak, F., and Duhamel, T., 1998. Non-Probability Sampling for WWW Surveys: A Comparison of Methods. *Journal of Marketing Research*, 4 (40), 307-313.

Schoorman, F.D, Mayer, R.C, and Davis, J.H., 2007. An integrative model of Organizational Trust: Past, Present, and Future. *Academy of Management Review,* 32 (2), 344- 354.

Schumacker, R.E. and Lomax, R.G., 2004. *A Beginner's Guide to Structural Equation Modeling*, 2nd ed. New Jersey: Lawrence Erlbaum Associates.

Schurr, P.H., and Ozanne, J.L., 1985. Influences on Exchange Processes: Buyers' Preconceptions of a Seller's Trustworthiness and Bargaining Toughness, *Journal of Consumer Research,* 4, 939-953.

Sevcik, P. and Bartlett, J., 2001. Understanding Web Performance, *Business Communications Review*, 31 (10), 28-36.

Shapiro, D. L., Sheppard, B. H., and Cheraskin, L., 1992. Business on a Handshake. *Negotiation Journal,* 3, 365-377.

Shapiro, S. P., 1987. The Social Control of Impersonal Trust. *American Journal of Sociology*, 93, 623-658.

Sheehan K. B. 1999. An Investigation of Gender Differences in On-line Privacy Concerns and Resultant Behaviors. *Journal of Interactive Marketing,* 13 (4), 24.

Shemwell, D.J., Yavas, U. and Bilgin, Z., 1998. Customer-service provider relationships: an empirical test of a model of service quality, satisfaction, and relationship-oriented outcomes'', *International Journal of Service Industry Management*, 9 (2), 155-168.

Sheppard, B.H., and Sherman, D.M., 1998. The grammars of trust: a model and general implications. *Academy of Management Review,* 23(3), 422-437.

Sheth, J.N. and Parvatiyar, A., 1995. Relationship marketing in consumer markets: antecedents and consequences. *Journal of the Academy of Marketing Science*, 23 (4), 255-271.

Shim, J.T., Slyke, C.V., Jiang, J.J., and Johnson, R.D., 2004. Does trust reduce concern for information privacy in e-commerce? *Proceedings of the 7th Annual Conference of the Southern Association for Information Systems,* Feb. 27-28, Georgia, 227-234.

Silverman, D, 1994. *Interpretative Qualitative Data.* London: Sage.

Silverman, D, 2000. *Doing Qualitative Research.* London: Sage.

Sinclaire, J. K., 2007. *Initial Trust Formation in B2C E-Commerce: The Effects of Social Influence and Artifacts of Institutional Trust and Social Presence on willingness to provide personal information online.* Thesis (PhD). University of Memphis, USA.

Sitkin, S. B, & Roth, N. L., 1993. Explaining the limited effectiveness of legalistic "remedies" for trust/distrust. *Organization Science.* 4, 367-392.

Slater, S. F. and Narver J. C., 1994a. "Does Competitive Environment Moderate the Market Orientation-Performance Relationship?" *Journal of Marketing*, 58 January, 46-55.

Slater, S. F. and Narver J. C., 1994b. Market Orientation, Customer Values, and Superior Performance. *Business Horizons*, 37, 22-28.

Slyke, C. V., Shim, J. T., Johnson, R., and Jiang, J. 2006. Concern for Information Privacy and Online Consumer Purchasing. *Journal of the Association for Information Systems*, 7 (6), 415- 444.

Smith, H.J., 1993. Privacy Policies and Practices: Inside the Organizational Maze. *Communications of the ACM,* 36 (12), 105-122.

Smith, J.B. and Barclay, D.W., 1997. The effects of organizational differences and trust on the effectiveness of selling partner relationships. *Journal of Marketing,* 61 (Jan.), 3-21.

Smith, K.B., 2002. Typologies, taxonomies, and the benefits of policy classification. *Policy Study Journal,* 30 (3), 379-395.

Smith, S.M. and Whitlark, D. B., 2001. Men and women online: What makes them click? *Marketing Research*, 13, 20-25.

Snook, S.C. and Gorsuch, R.L., 1989. Principal Component Analysis Versus Common Factor Analysis: A Monte Carlo Study. *Psychological Bulletin*, 106, 148-154.

So, W.C.M., Danny, T.N., and Domenic S., 2005. Factors affecting Intentions to Purchase via the Internet. *Industrial Management & Data*, 105 (9), 122-1244.

Solomon, L. 1960. The influence of some types of power relationships and game strategies upon the development of interpersonal trust. *Journal of Abnormal and Social Psychology.* 61, 223-230.

Sousa, V.D., Zauszniewski, J. A., and Musil, C. M., 2004. How to Determine Whether a Convenience Sample Represents the Population. *Applied Nursing Research*, 17 (2), 130-133.

Spence, M., 1974. Market-Signaling. *Harvard University Press,* Cambridge, MA.

Spiller, P. and Lohse, G.L., 1997. A classification of Internet retail stores. *International Journal of Electronic Commerce*, 2 (2), 29-56.

Srinivasan, S. S., Anderson, R. E., and Ponnavolu, K. 2002. Customer loyalty in e-commerce: An exploration of its antecedents and consequences, *Journal of Retailing,* 78 (1), 41-51.

Stevens, J.P., 1980. *Applied Multivariate Statistics for the Social Sciences.* 2nd ed. Hillsdale, NJ: Erlbaum.

Stewart, K.J., 1999. Transference as a Means of Building Trust in World Wide Web Sites, *Proceedings of the Twentieth International Conference on Information Systems,* Charlotte, NC.

Strickland, L. H. 1958. Surveillance and trust. *Journal of Personality.* 26, 200-215.

Sultan, F., Urban, G.L., Shankar, V, and Bart, I.Y., 2002. Determinants and Consequences of Trust in e-Business. *Working Paper*, Sloan School of Management, MIT, Cambridge, MA 02142.

Stapleton, C. D., 1997. *Basic Concepts and Procedures of Confirmatory Factor Analysis.* Texas A&M University. Available from: http://ericae.net/ft/tamu/Cfa.htm. [Accessed on 9 March 2008].

Szymanski, D.M. and Hise, R.T., 2000. e-satisfaction: an initial examination, *Journal of Retailing*, 76(3), 309-22.

Tabachnick, B.G. and Fidell, L.S., 2001. *Using Multivariate Statistics*, 4th ed. Boston: Allyn & Bacon.

Tan, S .J., 1999. "Strategies for reducing customer's risk aversion and internet shopping", *Journal of Consumer Marketing*, 16(2), 163–180.

Taylor, S.J. and Bogdan, R., 1984. *Introduction to Qualitative Research Methods: The Search for Meanings*. 2nd ed. New York: Wiley.

Thompson, S.K., 2002. *Sampling*, 2nd ed. New York: Wiley.

Tsinopoulos, C.D., 2003. *The Evolution of Drug Discovery Strategies.* Thesis (PhD), Warwick University.

Uncles, M. 2000. Market orientation. *Australian Journal of Management*, 25 (2), i-ix.

Urban, G.L., Sultan F., and Qualls, W.J., 2000. Placing Trust at the Center of Your Internet Strategy. *Sloan Management Review*, Fall (1), 39-48.

Van Slyke, C., Comunale, C. L., and Belanger, F., 2002. Gender differences in perceptions of web-based shopping. *Communications of the ACM*, 45 (7), 82-86.

Velicer, W.F. and Jackson, D.N., 1990. Component Analysis Versus Common Factor Analysis: Some Issues in Selecting an Appropriate Procedure. *Multivariate Behavioral Research*, 25, 1-28.

Venkatesh, V., 2000. Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems,* 11 (4), 342-65.

Venkatesh, V. and Davis, F.D., 2000. A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science,* 46 (2), 186-204.

Venkatesh, V., Morris, M.G., and Ackerman, P.L., 2000. A longitudinal field investigation of gender differences in individual technology adoption decision making process. *Organizational Behavior and Human Decision Processes*, 83(1), 33-60.

Wales, E. 2003. E-Commerce Counts Cost of Online Card Fraud. *Computer Fraud & Security*, 1, 9-11.

Wang, W. and Benbasat, I., 2005. Trust in and Adoption of Online Recommendation Agents. *Journal of the Association for Information Systems*, 6 (3), 72- 100.

Wang, R.Y. and Strong, D.M., 1996. Beyond accuracy: what data quality means to data consumers. *Journal of Management Information Systems*, 12 (4), 5-34.

Webster, J., and Martocchio, J.J., 1992. Microcomputer playfulness; Development of a measure with workplace implications. MIS *Quarterly,* 16(2), 201-226.

Westbrook, R.A., 1987. Product/Consumption-Based Affective Responses and Post Purchase Processes. *Journal of Marketing Research*, 24, 258-270.

Williamson, O.E., 1993. Calculativeness, trust, and economic organization. *Journal of Law & Economics,* 36, 453-486.

Williamson, O.E., 1985. *The Economic Institutions of Capitalism,* Free Press, New York.

Wolfinbarger, M. and Gilly, M.C., 2001. EtailQ: dimensionalizing, measuring and predicting e-tail quality. *Journal of Retailing,* 79 (3), 183-98.

Yoon, S., 2002. The Antecedents & Consequences of Trust in Online-Purchase Decisions. *Journal of Interactive Marketing,* 16 (2), 47-63.

Zaheer, A., McEvily, B., and Perrone, V., 1988. Does Trust Matter? Exploring the Effects on Inter-organizational and Interpersonal Trust on Performance. *Organizational Science,* 9 (2), 141-159.

Zand, D.E., 1972. Trust and managerial problem solving. *Administrative Science Quarterly,* 17, 229-239.

ZDNet UK, 2006. Available from: http://news.zdnet.co.uk/ [Accessed: 6 June 2006].

Zeithaml, V.A. and Bitner, M.J., 1997. *Services Marketing*, McGraw-Hill, Singapore, 114.

Zikmund, W.G. 2000. *Business Research Methods.* 6th ed. Florida: The Dryden Press.

Zhang, X., Keeling, K.B. and Pavur, R.J., 2000. Information quality of commercial Web site home pages: an explorative analysis. *Proceedings of the Twenty First International Conference on Information Systems*, Brisbane, 164-175.

Zhu, K., Kraemer, K. L., Xu, S. and Dedrick, J., 2004. "Information Technology Payoff in E-Business Environments: An International Perspective on Value Creation of E-Business in the Financial Services Industry", *Journal of Management Information Systems*, 21 (1), 30.

Zucker, L. G., 1986. Production of trust: Institutional sources of economic structure, 1840-1920. *Research in Organizational Behavior,* 8, 53-111.

APPENDIX A:

THE QUESTIONNAIRE FOR THE STUDY

Sub: Survey on E-Commerce.

Dear Sir/Madam,

I am a researcher in the Durham Business School and conducting a research in E-Commerce. This is a three year project and it aims at identifying the factors leading to trust in online transactions, i.e. e-commerce. The research strives to develop and examine risk and trust in online transactions. The questionnaire will take around 10 minutes to complete. I would really appreciate if all questions are filled in.

In filling-in the questionnaire you, will be asked for your e-mail address with the objective of preventing multiple entries by respondents and with an aim of contacting you in further stages of the research. Your responses to the questionnaire will be kept confidential and will be released as only summaries in which no individual answers can be identified. The research in no way violates ones' privacy and will not use the responses and personal details in any matter detrimental to the respondent.
With thanks,

Musfiq Mannan Choudhury
PhD Researcher
Durham Business School.
m.m.choudhury@durham.ac.uk

Questionnaire on E-Commerce

Age:

☐ Less than 15 ☐ Between 16-25 ☐ Between 26-35 ☐ Between 36-50 ☐ Above 51

Gender: ☐ Male ☐ Female

My highest level of educational qualification is:

☐ No formal education
☐ High school graduate
☐ Diploma/ Bachelor degree
☐ Masters /Post Graduate degree
☐ PhD or above

Yearly household income:

☐ £ 0 - £4,999
☐ 5,000 - £9,999
☐ £10,000 - £14,999
☐ £15,000 - £19,999
☐ Above £20,000

Do you use the Internet? ☐Yes ☐No

If YES, please proceed on with the next questions. If NO, please do not proceed further.

I have been using the Internet for:

☐less than 1 year
☐between 1 and 2 yrs
☐between 2 and 3 yrs
☐between 3 and 5 yrs
☐5 years or more

I use the Internet approximately:

☐less than 1 h per week
☐between 1 and 3 h per week
☐ between 3 and 10 h per week

☐ between 10 and 20 h per week
☐ more than 20 h per week

Have you ever purchased from the Internet? ☐Yes ☐No

If yes, please turn to page 2.

If No, please do not proceed further.

(a) What is the approximate amount of your online purchase (per year)?

☐ less than £100
☐ between £100-500
☐ between £500-1,000
☐ between £1,000-2,000
☐ above £2,000

(b) Please specify the name of *at least five* of the websites from which you have purchased:

....

....

.....

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
TRUST					
TRUST_1 Most commercial websites (from which I shop/had shopped) have the necessary skills and ability to carry out an online transaction.	☐	☐	☐	☐	☐
TRUST_2 Most commercial web sites have the necessary technological capability *(e.g. to process transactions, keep track of previous purchases of customers, etc.)* to carry out the online transaction.	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
TRUST_3 The chance of having a technical failure in an online transaction is quite small. *(e.g. unable to accept payments by credit cards)*	☐	☐	☐	☐	☐
TRUST_4 I can predict performance of e-commerce web sites from past experience with them.	☐	☐	☐	☐	☐
TRUST_5 I tend to be confident when I am dealing with the e-commerce web sites that I have had a pleasant experience with.	☐	☐	☐	☐	☐
TRUST_6 Future expectations on e-commerce websites is related to past experiences with them.	☐	☐	☐	☐	☐
TRUST_7 Most e-commerce websites that I shop in are safe in online transactions. *(e.g. conducting a transaction in an encrypted manner so that they don't fall in hands of scrupulous parties)*	☐	☐	☐	☐	☐
TRUST_8 Most e-commerce websites are open and receptive to customer needs.	☐	☐	☐	☐	☐
TRUST_9 Most e-commerce websites keep their customers' best interest in mind during most transactions.	☐	☐	☐	☐	☐
MARKET ORIENTATION MKT_OR_1 The e-commerce web sites that I have visited are generally effective in collecting customers' information. e.g. *personal information, credit card information, preferences, etc.*	☐	☐	☐	☐	☐
MKT_OR_2 Most e-commerce websites encourage customers to send their feedback on any issues.	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
MKT_OR_3 My opinion as a customer is reviewed and exchanged effectively through e-commerce web sites.	☐	☐	☐	☐	☐
MKT_OR_4 My opinion can influence the way e-commerce web sites serve customers.	☐	☐	☐	☐	☐
MKT_OR_5 My opinion as a customer can be easily lost in the amount of information.	☐	☐	☐	☐	☐
MKT_OR_6 Usually I receive a timely response from the e-commerce websites from which I purchase.	☐	☐	☐	☐	☐
MKT_OR_7 Usually any issues relating to online purchases can be solved effectively and satisfactorily once I have contacted the web sites with my problems.	☐	☐	☐	☐	☐
RISK RISK_1 Online purchases are risky as my credit card information may be shared with other parties.	☐	☐	☐	☐	☐
RISK_2 Online purchases are risky as there is a chance that payment may be taken but delivery may not be made.	☐	☐	☐	☐	☐
RISK_3 Online purchases are risky because the products / services delivered may fail to meet my expectations.	☐	☐	☐	☐	☐
RISK_4 Online purchases are risky because it may cause others to think less highly of me.	☐	☐	☐	☐	☐
RISK_5 Online purchases are risky in terms of time because the products/services may fail to be delivered within the expected time frame.	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS					
SEC_TRST1 E-commerce technologies can detect fraudulent actions in e-commerce transactions. (*e.g. if the customer uses other person's credit card, wrong address, etc.)*	☐	☐	☐	☐	☐
SEC_TRST2 E-commerce websites can detect incorrect information when provided by online users.	☐	☐	☐	☐	☐
SEC_TRST3 The technologies used by the e-commerce websites are secure and reliable in conducting transactions.	☐	☐	☐	☐	☐
SEC_TRST4 Technological mechanisms can prevent a third party from stealing online customers' information.	☐	☐	☐	☐	☐
SEC_TRST5 I have a feeling that no one can access the data of e-commerce websites without permission.	☐	☐	☐	☐	☐
SEC_TRST6 E-commerce systems are capable of processing a large number of transactions efficiently.	☐	☐	☐	☐	☐
USER INTERFACE QUALITY					
UIQ_1 E-commerce websites from which I purchase have appropriate features suitable for online shopping.	☐	☐	☐	☐	☐
UIQ_2 E-commerce websites from which I purchase are convenient for searching for the products required by me.	☐	☐	☐	☐	☐
UIQ_3 E-commerce websites from which I purchase are easy to navigate.	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
PERCEIVED PRODUCT AND SERVICE INFORMATION QUALITY					
PPIQ_1 E-commerce websites provide up-to-date information about the products that they sell.	☐	☐	☐	☐	☐
PPIQ_2 E-commerce websites have product information that is easy to understand.	☐	☐	☐	☐	☐
PPIQ_3 E-commerce websites have information on product to be consistent (i.e. in other words, not changing and conflicting).	☐	☐	☐	☐	☐
PPIQ_4 The information on products sold in an e-commerce websites is relevant.	☐	☐	☐	☐	☐
PPIQ_5 I am unlikely to shop at an e-commerce website where information on products is inadequate.	☐	☐	☐	☐	☐
PPIQ_6 E-Commerce websites that I shop at are entertaining.	☐	☐	☐	☐	☐
ORG_REP3 Lack of knowledge about particular websites discourages me to shop from them.	☐	☐	☐	☐	☐
RELATIONAL BENEFIT					
REL_BEN1 When I purchase online, I save time.	☐	☐	☐	☐	☐
REL_BEN2 When I purchase online, I reduce my effort in searching for products.	☐	☐	☐	☐	☐
REL_BEN3 I purchase those items from e-commerce websites which are difficult to purchase in traditional stores.	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
REL_BEN4 I purchase those items from e-commerce websites which are costly to purchase in traditional stores.	☐	☐	☐	☐	☐
IMPORTANCE OF WEBSITE REPUTATION					
ORG_REP1 I prefer to shop from well reputed online stores.	☐	☐	☐	☐	☐
ORG_REP2 A well known website posses less risk in e-commerce.	☐	☐	☐	☐	☐
SOCIAL PRESENCE					
SPIR_1 There is a sense of human contact and personal touch from the e-commerce websites from which I purchase.	☐	☐	☐	☐	☐
SPIR_1 There is a sense of sociability in the e-commerce website from which I purchase.	☐	☐	☐	☐	☐
SPIR_1 There is a sense of human sensitivity and warmth in the e-commerce websites from which I purchase.	☐	☐	☐	☐	☐

THANK YOU. YOUR RESPONSES ARE CONSIDERED HIGHLY VALUABLE.

In order to contact you regarding further aspects of the research, would you please specify:

Your E-Mail: .....

Nationality: ..... *(optional)*

Note: The questions are ordered in the manner they have been presented to the respondents. Numberings are not showed instead the item codes are provided for convenience of the reader.

APPENDIX B:

DESCRIPTIVE STATISTICS

DESCRIPTIVE STATISTICS

	Gender	Age	Education	Income	yrs_int_use	hrs_per_week	Amnt_Purchased
Mean	1.4879	3.0171	3.5917	3.8407	4.8734	4.0982	2.5007
Std. Error of Mean	0.01887	0.03623	0.03392	0.05655	0.01658	0.03761	0.04603
Median	1.0000	3.0000	4.0000	5.0000	5.0000	4.0000	2.0000
Mode	1.00	2.00	4.00	5.00	5.00	5.00	2.00
Std. Deviation	0.50021	0.96062	0.89938	1.49936	0.43972	0.99731	1.22052
Variance	0.250	0.923	0.809	2.248	0.193	0.995	1.490
Skewness	0.048	0.488	-0.553	-0.896	-4.436	-0.828	0.670
Std. Error of Skewness	0.092	0.092	0.092	0.092	0.092	0.092	0.092
Kurtosis	-2.003	-0.863	-0.199	-0.752	24.660	-0.204	-0.475
Std. Error of Kurtosis	0.184	0.184	0.184	0.184	0.184	0.184	0.184
Range	1.00	3.00	4.00	4.00	4.00	4.00	4.00
Minimum	1.00	2.00	1.00	1.00	1.00	1.00	1.00
Maximum	2.00	5.00	5.00	5.00	5.00	5.00	5.00
Sum	1,046.00	2,121.00	2,525.00	2,700.00	3,426.00	2,881.00	1,758.00

		TRUST_1	TRUST_2	TRUST_3	TRUST_4	TRUST_5	TRUST_6	TRUST_7	TRUST_8	TRUST_9
Mean		4.2304	4.1166	3.4964	3.7482	4.1906	4.1664	4.1650	3.4367	3.2859
95% Confidence Interval for Mean	Lower Bound	4.1826	4.0626	3.4273	3.6877	4.1361	4.1107	4.1124	3.3764	3.2267
	Upper Bound	4.2783	4.1707	3.5656	3.8087	4.2451	4.2222	4.2177	3.4970	3.3452
5% Trimmed Mean		4.2766	4.1707	3.5087	3.7869	4.2513	4.2292	4.2102	3.4471	3.2845
Std. Error of Mean		0.02435	0.02754	0.03521	0.03081	0.02777	0.02838	0.02682	0.03069	0.03018
Median		4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	3.0000
Mode		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00
Std. Deviation		0.64568	0.73033	0.93350	0.81688	0.73618	0.75252	0.71098	0.81382	0.80022
Variance		0.417	0.533	0.871	0.667	0.542	0.566	0.505	0.662	0.640
Skewness		-0.801	-0.756	-0.464	-0.687	-0.940	-1.048	-0.751	-0.431	-0.209
Std. Error of Skewness		0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092
z-scores of Skewness		-8.689	-8.200	-5.031	-7.447	-10.193	-11.372	-8.141	**-4.676**	**-2.269**
Kurtosis		2.161	0.833	-0.511	0.653	1.479	2.070	1.149	0.215	-0.001
Std. Error of Kurtosis		0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184
z-scores of Kurtosis		11.736	4.522	-2.778	3.548	8.030	11.245	6.239	**1.169**	**-0.006**
Range		4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Minimum		1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Sum		2,974.00	2,894.00	2,458.00	2,635.00	2,946.00	2,929.00	2,928.00	2,416.00	2,310.00

		MKT_OR_1	MKT_OR_2	MKT_OR_3	MKT_OR_4	MKT_OR_5	MKT_OR_6	MKT_OR_7	RISK_1	RISK_2
Mean		3.9203	3.1977	2.8748	2.6828	3.5533	3.9459	3.3172	2.9289	3.0413
95% Confidence Interval for Mean	Lower Bound	3.8702	3.1250	2.8116	2.6177	3.4890	3.8888	3.2532	2.8500	2.9654
	Upper Bound	3.9705	3.2705	2.9380	2.7479	3.6177	4.0031	3.3812	3.0077	3.1171
5% Trimmed Mean		3.9494	3.2068	2.8896	2.6762	3.5782	4.0018	3.3317	2.9210	3.0314
Std. Error of Mean		0.02553	0.03705	0.03218	0.03315	0.03276	0.02910	0.03259	0.04017	0.03861
Median		4.0000	3.0000	3.0000	3.0000	4.0000	4.0000	3.0000	3.0000	3.0000
Mode		4.00	4.00	3.00	3.00	4.00	4.00	3.00	2.00	2.00
Std. Deviation		0.67678	0.98241	0.85317	0.87889	0.86869	0.77160	0.86418	1.06515	1.02379
Variance		0.458	0.965	0.728	0.772	0.755	0.595	0.747	1.135	1.048
Skewness		-0.621	-0.205	-0.048	0.235	-0.478	-0.821	-0.461	0.185	0.061
Std. Error of Skewness		0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092
z-scores of Skewness		-6.739	-2.228	-0.517	2.544	-5.189	-8.909	-5.003	**2.003**	**0.663**
Kurtosis		1.143	-0.599	0.033	-0.037	0.165	1.201	0.191	-0.892	-0.970
Std. Error of Kurtosis		0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184
z-scores of Kurtosis		6.205	-3.255	0.182	-0.200	0.898	6.522	1.037	**-4.844**	**-5.270**
Range		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Sum		2,756.00	2,248.00	2,021.00	1,886.00	2,498.00	2,774.00	2,332.00	2,059.00	2,138.00

		RISK_3	RISK_4	RISK_5	SEC_TRST1	SEC_TRST2	SEC_TRST3	SEC_TRST4	SEC_TRST5	SEC_TRST6
Mean		3.3115	1.6956	3.2077	2.9772	3.1721	3.5334	3.2475	2.7767	3.8279
95% Confidence Interval for Mean	Lower Bound	3.2362	1.6274	3.1319	3.1066	3.4790	3.4790	3.1836	2.7032	3.7747
	Upper Bound	3.3869	1.7638	3.2835	3.2377	3.5878	3.5878	3.3114	2.8502	3.8811
5% Trimmed Mean		3.3206	1.5888	3.2147	3.1865	3.5453	3.5453	3.2608	2.7758	3.8641
Std. Error of Mean		0.03838	0.03472	0.03861	0.03503	0.03339	0.02771	0.03255	0.03744	0.02709
Median		4.0000	1.0000	3.0000	3.0000	3.0000	4.0000	3.0000	3.0000	4.0000
Mode		4.00	1.00	4.00	3.00	3.00	4.00	3.00	2.00	4.00
Std. Deviation		1.01749	0.92053	1.02371	0.92883	0.88528	0.73473	0.86309	0.99281	0.71827
Variance		1.035	0.847	1.048	0.863	0.784	0.540	0.745	0.986	0.516
Skewness		-0.271	1.408	-0.193	-0.094	-0.306	-0.570	-0.380	0.074	-0.726
Std. Error of Skewness		0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092
z-scores of Skewness		-2.934	15.278	-2.089	-1.018	-3.321	-6.179	-4.120	**0.798**	**-7.879**
Kurtosis		-0.823	1.717	-0.864	-0.350	-0.236	0.401	-0.216	-0.689	1.307
Std. Error of Kurtosis		0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184
z-scores of Kurtosis		-4.470	9.324	-4.694	-1.903	-1.284	2.180	-1.171	**-3.744**	**7.099**
Range		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Sum		2,328.00	1,192.00	2,255.00	2,093.00	2,230.00	2,484.00	2,283.00	1,952.00	2,691.00

		UIQ_1	UIQ_2	UIQ_3	PPIQ_1	PPIQ_2	PPIQ_3	PPIQ_4	PPIQ_5	PPIQ_6
Mean		4.0612	4.0441	3.9118	3.8336	3.7255	3.5704	3.7425	4.0996	2.9047
95% Confidence Interval for Mean	Lower Bound	4.0157	3.9935	3.8590	3.7752	3.6675	3.5134	3.6895	4.0343	2.8438
	Upper Bound	4.1066	4.0947	3.9646	3.8919	3.7834	3.6274	3.7956	4.1648	2.9656
5% Trimmed Mean		4.0917	4.0853	3.9636	3.8801	3.7553	3.5798	3.7726	4.1820	2.9178
Std. Error of Mean		0.02315	0.02577	0.02688	0.02971	0.02952	0.02904	0.02702	0.03323	0.03101
Median		4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	3.0000
Mode		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00
Std. Deviation		0.61367	0.68316	0.71266	0.78766	0.78266	0.77005	0.71651	0.88113	0.82225
Variance		0.377	0.467	0.508	0.620	0.613	0.593	0.513	0.776	0.676
Skewness		-0.814	-0.835	-1.031	-0.907	-0.674	-0.256	-0.717	-1.198	-0.053
Std. Error of Skewness		0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092	0.092
z-scores of Skewness		-8.829	-9.059	-11.182	-9.840	-7.314	-2.776	-7.778	**-12.991**	**-0.577**
Kurtosis		3.240	2.119	2.341	1.270	0.479	-0.199	0.838	1.630	0.015
Std. Error of Kurtosis		0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184
z-scores of Kurtosis		17.599	11.510	12.714	6.900	2.603	-1.082	4.551	**8.853**	**0.079**
Range		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Sum		2,855.00	2,843.00	2,750.00	2,695.00	2,619.00	2,510.00	2,631.00	2,882.00	2,042.00

		REL_BEN1	REL_BEN2	REL_BEN3	REL_BEN4	ORG_REP1	ORG_REP2	ORG_REP3
Mean		4.0953	3.8706	3.5092	3.6046	4.1550	3.7297	3.6558
95% Confidence Interval for Mean	Lower Bound	4.0314	3.7941	3.4296	3.5291	4.0964	3.6603	3.5815
	Upper Bound	4.1592	3.9471	3.5889	3.6800	4.2137	3.7991	3.7301
5% Trimmed Mean		4.1741	3.9370	3.5261	3.6351	4.2244	3.7711	3.6936
Std. Error of Mean		0.03254	0.03896	0.04056	0.03841	0.02986	0.03535	0.03784
Median		4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
Mode		4.00	4.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation		0.86282	1.03309	1.07529	1.01840	0.79178	0.93724	1.00334
Variance		0.744	1.067	1.156	1.037	0.627	0.878	1.007
Skewness		-1.079	-0.890	-0.265	-0.431	-0.956	-0.594	-0.602
Std. Error of Skewness		0.092	0.092	0.092	0.092	0.092	0.092	0.092
z-scores of Skewness		-11.701	-9.649	-2.878	-4.677	-10.375	-6.440	-6.528
Kurtosis		1.346	0.128	-0.990	-0.585	1.152	-0.041	-0.337
Std. Error of Kurtosis		0.184	0.184	0.184	0.184	0.184	0.184	0.184
z-scores of Kurtosis		7.309	0.694	-5.379	-3.179	6.255	-0.222	-1.828
Range		4.00	4.00	4.00	4.00	4.00	4.00	4.00
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		5.00	5.00	5.00	5.00	5.00	5.00	5.00
Sum		2,879.00	2,721.00	2,467.00	2,534.00	2,921.00	2,622.00	2,570.00

		SPIR_1	SPIR_2	SPIR_3
Mean		2.4694	2.4296	2.4267
95% Confidence Interval for Mean	Lower Bound	2.3978	2.3596	2.3572
	Upper Bound	2.5411	2.4995	2.4963
5% Trimmed Mean		2.4486	2.4091	2.4060
Std. Error of Mean		0.03649	0.03562	0.03544
Median		2.0000	2.0000	2.0000
Mode		2.00	2.00	2.00
Std. Deviation		0.96749	0.94452	0.93977
Variance		0.936	0.892	0.883
Skewness		0.281	0.199	0.203
Std. Error of Skewness		0.092	0.092	0.092
z-scores of Skewness		3.045	2.155	2.197
Kurtosis		-0.502	-0.512	-0.488
Std. Error of Kurtosis		0.184	0.184	0.184
z-scores of Kurtosis		-2.728	-2.781	-2.653
Range		4.00	4.00	4.00
Minimum		1.00	1.00	1.00
Maximum		5.00	5.00	5.00
Sum		1,736.00	1,708.00	1,706.00

APPENDIX C: FREQUENCY OF RESPONSES OF THE ITEMS IN THE QUESTIONNAIRE

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	360	51.2	51.2	51.2
	2.00	343	48.8	48.8	100.0
	Total	703	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	264	37.6	37.6	37.6
	3.00	217	30.9	30.9	68.4
	4.00	168	23.9	23.9	92.3
	5.00	54	7.7	7.7	100.0
	Total	703	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	1.0	1.0	1.0
	2.00	95	13.5	13.5	14.5
	3.00	159	22.6	22.6	37.1
	4.00	359	51.1	51.1	88.2
	5.00	83	11.8	11.8	100.0
	Total	703	100.0	100.0	

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	101	14.4	14.4	14.4
	2.00	56	8.0	8.0	22.3
	3.00	80	11.4	11.4	33.7
	4.00	83	11.8	11.8	45.5
	5.00	383	54.5	54.5	100.0
	Total	703	100.0	100.0	

yrs_int_use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	0.3	0.3	0.3
	2.00	1	0.1	0.1	0.4
	3.00	14	2.0	2.0	2.4
	4.00	50	7.1	7.1	9.5
	5.00	636	90.5	90.5	100.0
	Total	703	100.0	100.0	

hrs_per_week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	1.0	1.0	1.0
	2.00	45	6.4	6.4	7.4
	3.00	141	20.1	20.1	27.5
	4.00	189	26.9	26.9	54.3
	5.00	321	45.7	45.7	100.0
	Total	703	100.0	100.0	

Amnt_Purchsed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	146	20.8	20.8	20.8
	2.00	277	39.4	39.4	60.2
	3.00	133	18.9	18.9	79.1
	4.00	76	10.8	10.8	89.9
	5.00	71	10.1	10.1	100.0
	Total	703	100.0	100.0	

TRUST_1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	0.3	0.3	0.3
	2.00	9	1.3	1.3	1.6
	3.00	45	6.4	6.4	8.0
	4.00	416	59.2	59.2	67.1
	5.00	231	32.9	32.9	100.0
	Total	703	100.0	100.0	

TRUST_2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	26	3.7	3.7	3.7
	3.00	73	10.4	10.4	14.1
	4.00	397	56.5	56.5	70.6
	5.00	207	29.4	29.4	100.0
	Total	703	100.0	100.0	

TRUST_3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	8	1.1	1.1	1.1
	2.00	122	17.4	17.4	18.5
	3.00	158	22.5	22.5	41.0
	4.00	343	48.8	48.8	89.8
	5.00	72	10.2	10.2	100.0
	Total	703	100.0	100.0	

TRUST_4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	1.0	1.0	1.0
	2.00	47	6.7	6.7	7.7
	3.00	162	23.0	23.0	30.7
	4.00	387	55.0	55.0	85.8
	5.00	100	14.2	14.2	100.0
	Total	703	100.0	100.0	

TRUST_5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	0.3	0.3	0.3
	2.00	21	3.0	3.0	3.3
	3.00	61	8.7	8.7	11.9
	4.00	376	53.5	53.5	65.4
	5.00	243	34.6	34.6	100.0
	Total	703	100.0	100.0	

TRUST_6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	0.7	0.7	0.7
	2.00	18	2.6	2.6	3.3
	3.00	66	9.4	9.4	12.7
	4.00	380	54.1	54.1	66.7
	5.00	234	33.3	33.3	100.0
	Total	703	100.0	100.0	

TRUST_7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	0.3	0.3	0.3
	2.00	13	1.8	1.8	2.1
	3.00	78	11.1	11.1	13.2
	4.00	384	54.6	54.6	67.9
	5.00	226	32.1	32.1	100.0
	Total	703	100.0	100.0	

TRUST_8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	11	1.6	1.6	1.6
	2.00	69	9.8	9.8	11.4
	3.00	269	38.3	38.3	49.6
	4.00	310	44.1	44.1	93.7
	5.00	44	6.3	6.3	100.0
	Total	703	100.0	100.0	

TRUST_9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	1.4	1.4	1.4
	2.00	92	13.1	13.1	14.5
	3.00	319	45.4	45.4	59.9
	4.00	251	35.7	35.7	95.6
	5.00	31	4.4	4.4	100.0
	Total	703	100.0	100.0	

MKT_OR_1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	0.1	0.1	0.1
	2.00	22	3.1	3.1	3.3
	3.00	119	16.9	16.9	20.2
	4.00	451	64.2	64.2	84.4
	5.00	110	15.6	15.6	100.0
	Total	703	100.0	100.0	

MKT_OR_2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	27	3.8	3.8	3.8
	2.00	153	21.8	21.8	25.6
	3.00	226	32.1	32.1	57.8
	4.00	248	35.3	35.3	93.0
	5.00	49	7.0	7.0	100.0
	Total	703	100.0	100.0	

MKT_OR_3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	38	5.4	5.4	5.4
	2.00	174	24.8	24.8	30.2
	3.00	346	49.2	49.2	79.4
	4.00	128	18.2	18.2	97.6
	5.00	17	2.4	2.4	100.0
	Total	703	100.0	100.0	

MKT_OR_4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	51	7.3	7.3	7.3
	2.00	248	35.3	35.3	42.5
	3.00	294	41.8	41.8	84.4
	4.00	93	13.2	13.2	97.6
	5.00	17	2.4	2.4	100.0
	Total	703	100.0	100.0	

MKT_OR_5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	12	1.7	1.7	1.7
	2.00	65	9.2	9.2	11.0
	3.00	225	32.0	32.0	43.0
	4.00	324	46.1	46.1	89.0
	5.00	77	11.0	11.0	100.0
	Total	703	100.0	100.0	

MKT_OR_6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	0.6	0.6	0.6
	2.00	33	4.7	4.7	5.3
	3.00	106	15.1	15.1	20.3
	4.00	414	58.9	58.9	79.2
	5.00	146	20.8	20.8	100.0
	Total	703	100.0	100.0	

MKT_OR_7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	22	3.1	3.1	3.1
	2.00	83	11.8	11.8	14.9
	3.00	285	40.5	40.5	55.5
	4.00	276	39.3	39.3	94.7
	5.00	37	5.3	5.3	100.0
	Total	703	100.0	100.0	

RISK_1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	42	6.0	6.0	6.0
	2.00	251	35.7	35.7	41.7
	3.00	173	24.6	24.6	66.3
	4.00	189	26.9	26.9	93.2
	5.00	48	6.8	6.8	100.0
	Total	703	100.0	100.0	

RISK_2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	26	3.7	3.7	3.7
	2.00	232	33.0	33.0	36.7
	3.00	176	25.0	25.0	61.7
	4.00	225	32.0	32.0	93.7
	5.00	44	6.3	6.3	100.0
	Total	703	100.0	100.0	

RISK_3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	19	2.7	2.7	2.7
	2.00	165	23.5	23.5	26.2
	3.00	163	23.2	23.2	49.4
	4.00	290	41.3	41.3	90.6
	5.00	66	9.4	9.4	100.0
	Total	703	100.0	100.0	

RISK_4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	378	53.8	53.8	53.8
	2.00	209	29.7	29.7	83.5
	3.00	79	11.2	11.2	94.7
	4.00	26	3.7	3.7	98.4
	5.00	11	1.6	1.6	100.0
	Total	703	100.0	100.0	

RISK_5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	25	3.6	3.6	3.6
	2.00	181	25.7	25.7	29.3
	3.00	174	24.8	24.8	54.1
	4.00	269	38.3	38.3	92.3
	5.00	54	7.7	7.7	100.0
	Total	703	100.0	100.0	

SEC_TRST1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	39	5.5	5.5	5.5
	2.00	168	23.9	23.9	29.4
	3.00	292	41.5	41.5	71.0
	4.00	178	25.3	25.3	96.3
	5.00	26	3.7	3.7	100.0
	Total	703	100.0	100.0	

SEC_TRST2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	24	3.4	3.4	3.4
	2.00	126	17.9	17.9	21.3
	3.00	285	40.5	40.5	61.9
	4.00	241	34.3	34.3	96.2
	5.00	27	3.8	3.8	100.0
	Total	703	100.0	100.0	

SEC_TRST3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	0.7	0.7	0.7
	2.00	52	7.4	7.4	8.1
	3.00	244	34.7	34.7	42.8
	4.00	367	52.2	52.2	95.0
	5.00	35	5.0	5.0	100.0
	Total	703	100.0	100.0	

SEC_TRST4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	18	2.6	2.6	2.6
	2.00	115	16.4	16.4	18.9
	3.00	272	38.7	38.7	57.6
	4.00	271	38.5	38.5	96.2
	5.00	27	3.8	3.8	100.0
	Total	703	100.0	100.0	

SEC_TRST5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	64	9.1	9.1	9.1
	2.00	230	32.7	32.7	41.8
	3.00	228	32.4	32.4	74.3
	4.00	161	22.9	22.9	97.2
	5.00	20	2.8	2.8	100.0
	Total	703	100.0	100.0	

SEC_TRST6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	0.6	0.6	0.6
	2.00	27	3.8	3.8	4.4
	3.00	147	20.9	20.9	25.3
	4.00	433	61.6	61.6	86.9
	5.00	92	13.1	13.1	100.0
	Total	703	100.0	100.0	

UIQ_1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	0.4	0.4	0.4
	2.00	9	1.3	1.3	1.7
	3.00	67	9.5	9.5	11.2
	4.00	487	69.3	69.3	80.5
	5.00	137	19.5	19.5	100.0
	Total	703	100.0	100.0	

UIQ_2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	0.4	0.4	0.4
	2.00	17	2.4	2.4	2.8
	3.00	80	11.4	11.4	14.2
	4.00	449	63.9	63.9	78.1
	5.00	154	21.9	21.9	100.0
	Total	703	100.0	100.0	

UIQ_3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	0.7	0.7	0.7
	2.00	29	4.1	4.1	4.8
	3.00	95	13.5	13.5	18.3
	4.00	468	66.6	66.6	84.9
	5.00	106	15.1	15.1	100.0
	Total	703	100.0	100.0	

PPIQ_1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	6	0.9	0.9	0.9
	2.00	45	6.4	6.4	7.3
	3.00	115	16.4	16.4	23.6
	4.00	431	61.3	61.3	84.9
	5.00	106	15.1	15.1	100.0
	Total	703	100.0	100.0	

PPIQ_2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	0.4	0.4	0.4
	2.00	55	7.8	7.8	8.3
	3.00	155	22.0	22.0	30.3
	4.00	409	58.2	58.2	88.5
	5.00	81	11.5	11.5	100.0
	Total	703	100.0	100.0	

PPIQ_3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	0.1	0.1	0.1
	2.00	58	8.3	8.3	8.4
	3.00	244	34.7	34.7	43.1
	4.00	339	48.2	48.2	91.3
	5.00	61	8.7	8.7	100.0
	Total	703	100.0	100.0	

PPIQ_4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	0.3	0.3	0.3
	2.00	41	5.8	5.8	6.1
	3.00	159	22.6	22.6	28.7
	4.00	435	61.9	61.9	90.6
	5.00	66	9.4	9.4	100.0
	Total	703	100.0	100.0	

PPIQ_5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	1.4	1.4	1.4
	2.00	40	5.7	5.7	7.1
	3.00	61	8.7	8.7	15.8
	4.00	351	49.9	49.9	65.7
	5.00	241	34.3	34.3	100.0
	Total	703	100.0	100.0	

PPIQ_6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	29	4.1	4.1	4.1
	2.00	173	24.6	24.6	28.7
	3.00	351	49.9	49.9	78.7
	4.00	136	19.3	19.3	98.0
	5.00	14	2.0	2.0	100.0
	Total	703	100.0	100.0	

ORG_REP3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	13	1.8	1.8	1.8
	2.00	105	14.9	14.9	16.8
	3.00	123	17.5	17.5	34.3
	4.00	332	47.2	47.2	81.5
	5.00	130	18.5	18.5	100.0
	Total	703	100.0	100.0	

REL_BEN1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	8	1.1	1.1	1.1
	2.00	35	5.0	5.0	6.1
	3.00	78	11.1	11.1	17.2
	4.00	343	48.8	48.8	66.0
	5.00	239	34.0	34.0	100.0
	Total	703	100.0	100.0	

REL_BEN2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	16	2.3	2.3	2.3
	2.00	84	11.9	11.9	14.2
	3.00	78	11.1	11.1	25.3
	4.00	322	45.8	45.8	71.1
	5.00	203	28.9	28.9	100.0
	Total	703	100.0	100.0	

REL_BEN3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	1.4	1.4	1.4
	2.00	154	21.9	21.9	23.3
	3.00	141	20.1	20.1	43.4
	4.00	264	37.6	37.6	80.9
	5.00	134	19.1	19.1	100.0
	Total	703	100.0	100.0	

REL_BEN4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	12	1.7	1.7	1.7
	2.00	110	15.6	15.6	17.4
	3.00	156	22.2	22.2	39.5
	4.00	291	41.4	41.4	80.9
	5.00	134	19.1	19.1	100.0
	Total	703	100.0	100.0	

ORG_REP1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	3	0.4	0.4	0.4
	2.00	27	3.8	3.8	4.3
	3.00	75	10.7	10.7	14.9
	4.00	351	49.9	49.9	64.9
	5.00	247	35.1	35.1	100.0
	Total	703	100.0	100.0	

ORG_REP2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	1.4	1.4	1.4
	2.00	71	10.1	10.1	11.5
	3.00	156	22.2	22.2	33.7
	4.00	328	46.7	46.7	80.4
	5.00	138	19.6	19.6	100.0
	Total	703	100.0	100.0	

SPIR_1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	111	15.8	15.8	15.8
	2.00	270	38.4	38.4	54.2
	3.00	214	30.4	30.4	84.6
	4.00	97	13.8	13.8	98.4
	5.00	11	1.6	1.6	100.0
	Total	703	100.0	100.0	

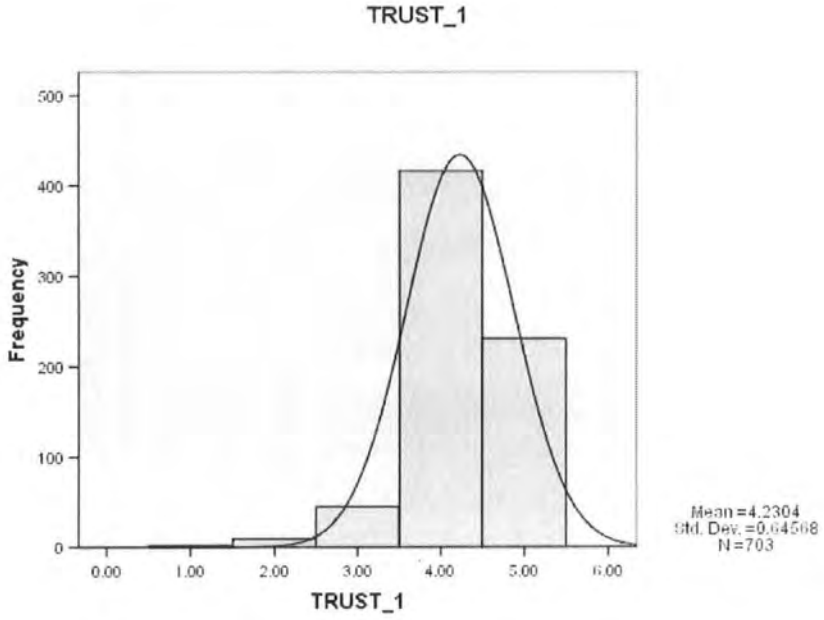
SPIR_2

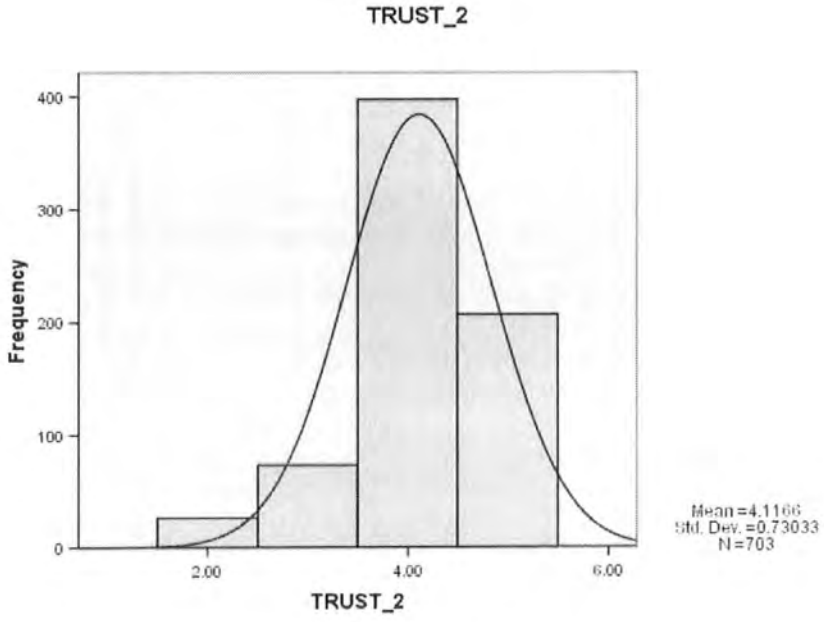
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	122	17.4	17.4	17.4
	2.00	254	36.1	36.1	53.5
	3.00	238	33.9	33.9	87.3
	4.00	81	11.5	11.5	98.9
	5.00	8	1.1	1.1	100.0
	Total	703	100.0	100.0	

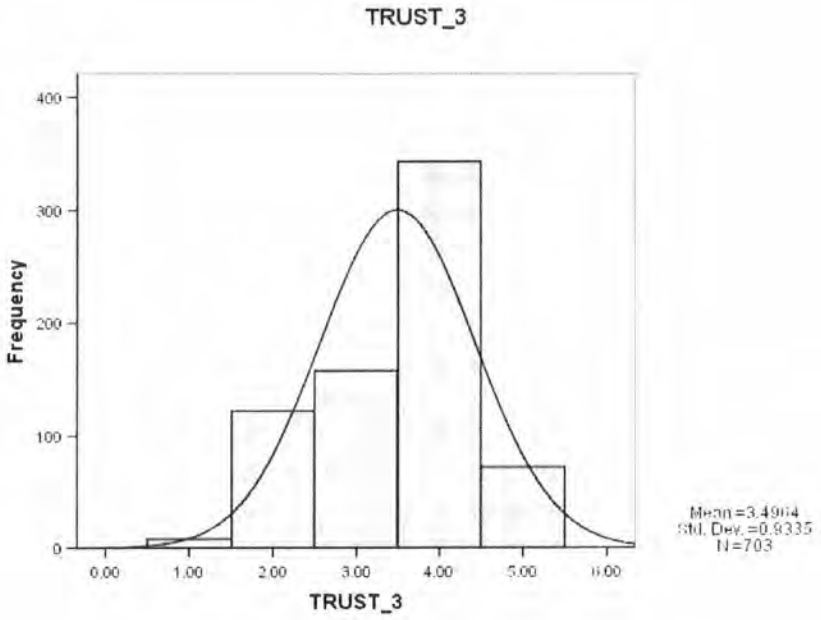
SPIR_3

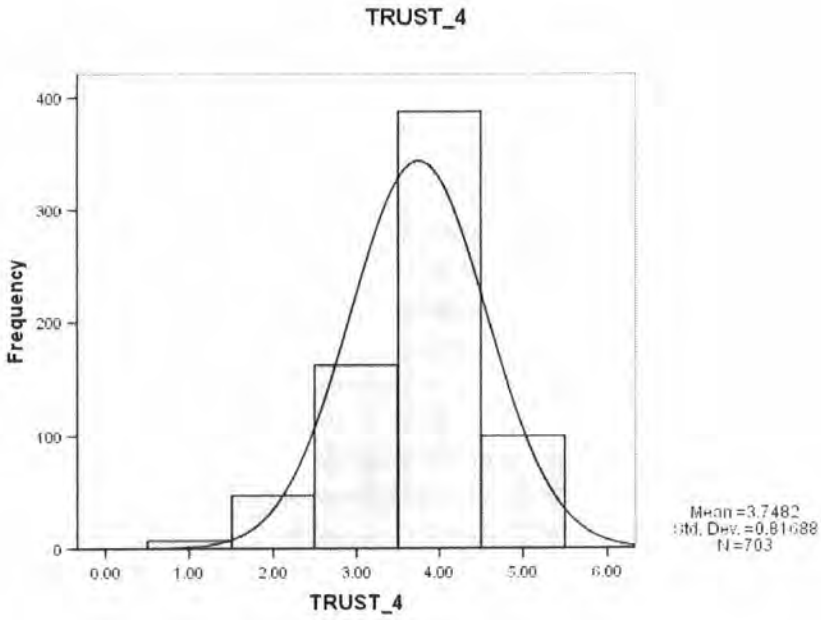
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	121	17.2	17.2	17.2
	2.00	256	36.4	36.4	53.6
	3.00	239	34.0	34.0	87.6
	4.00	79	11.2	11.2	98.9
	5.00	8	1.1	1.1	100.0
	Total	703	100.0	100.0	

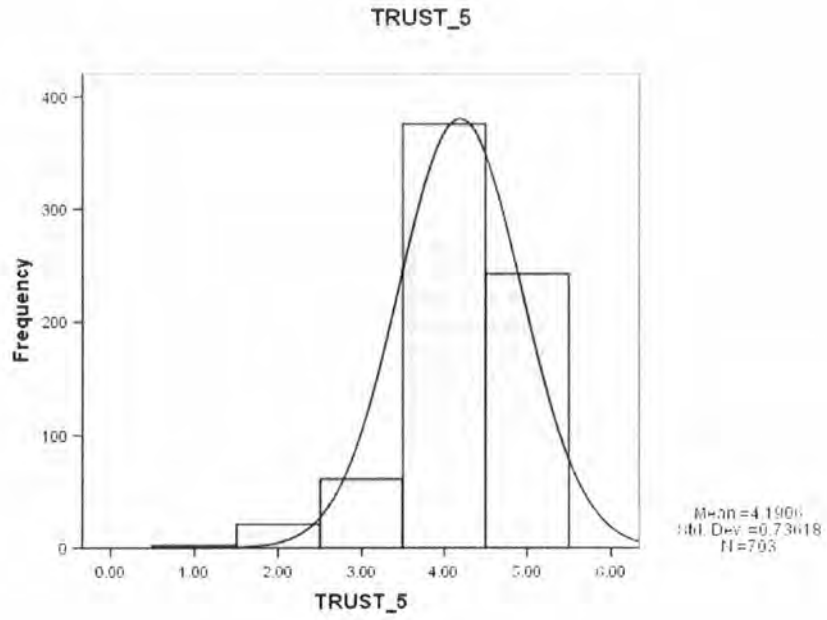
APPENDIX D: HISTOGRAM OF RESPONSES OF THE ITEMS OF THE QUESTIONNAIRE

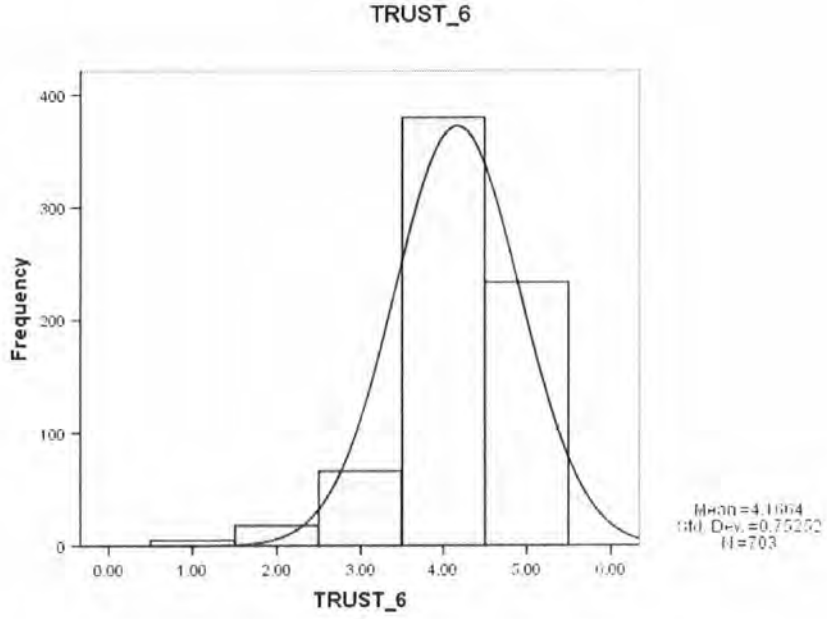


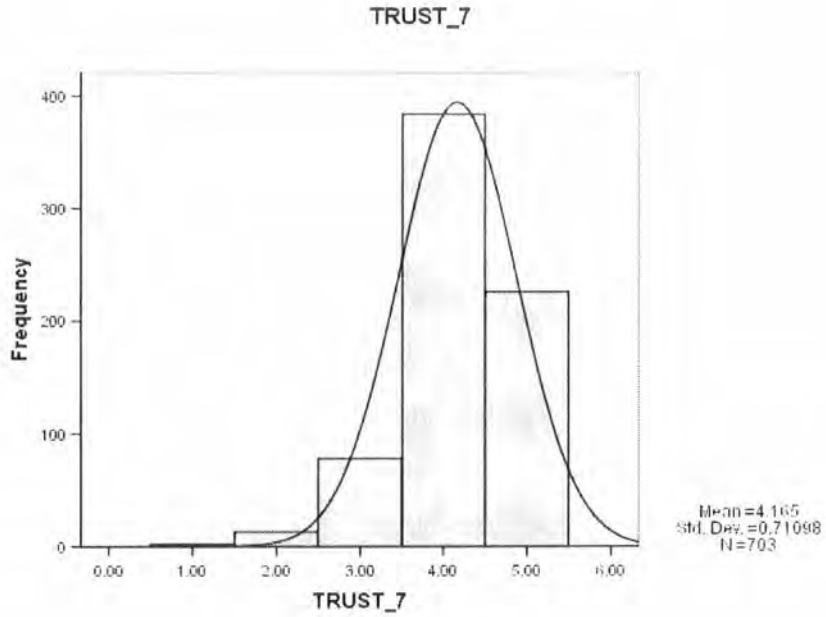


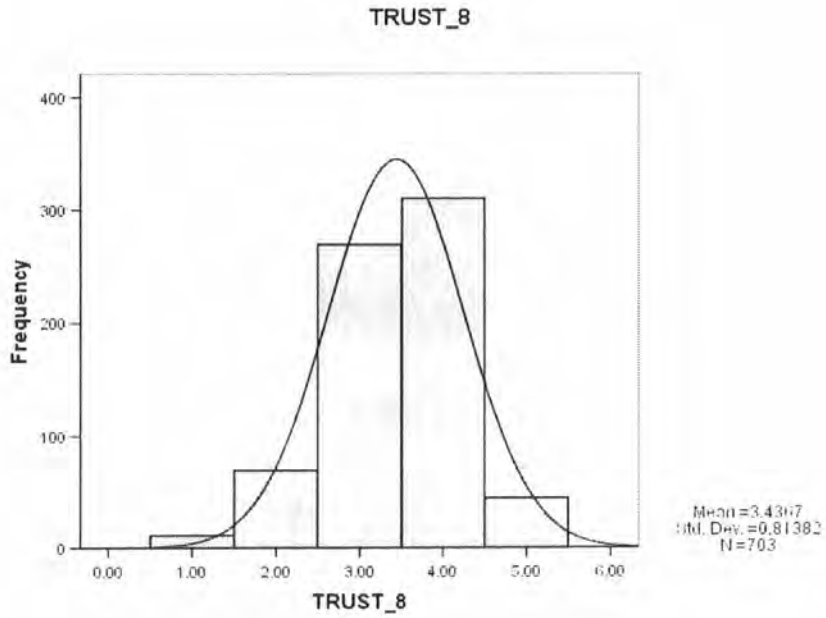

TRUST_3
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_3
Mean=3.4964
Std. Dev.=0.9335
N=703

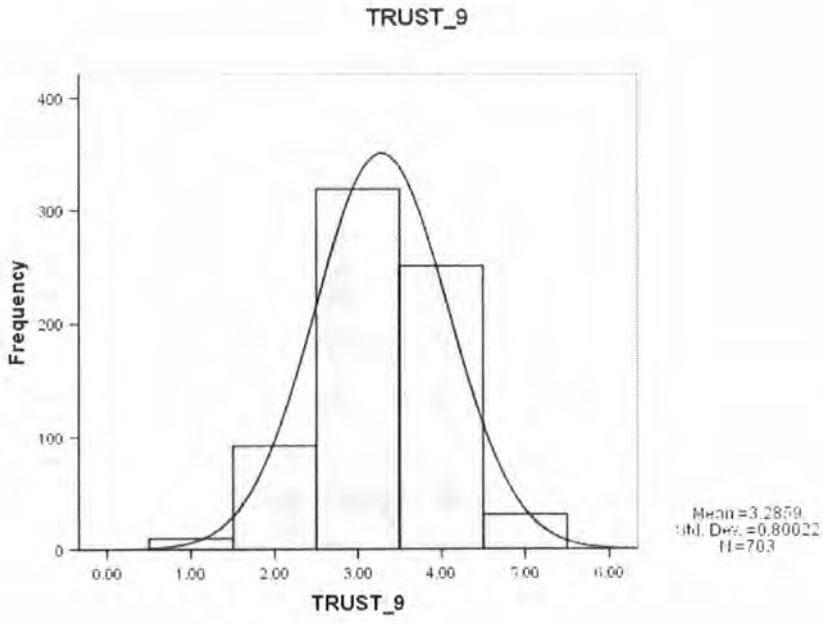

TRUST_4
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_4
Mean=3.7482
Std. Dev.=0.81688
N=703

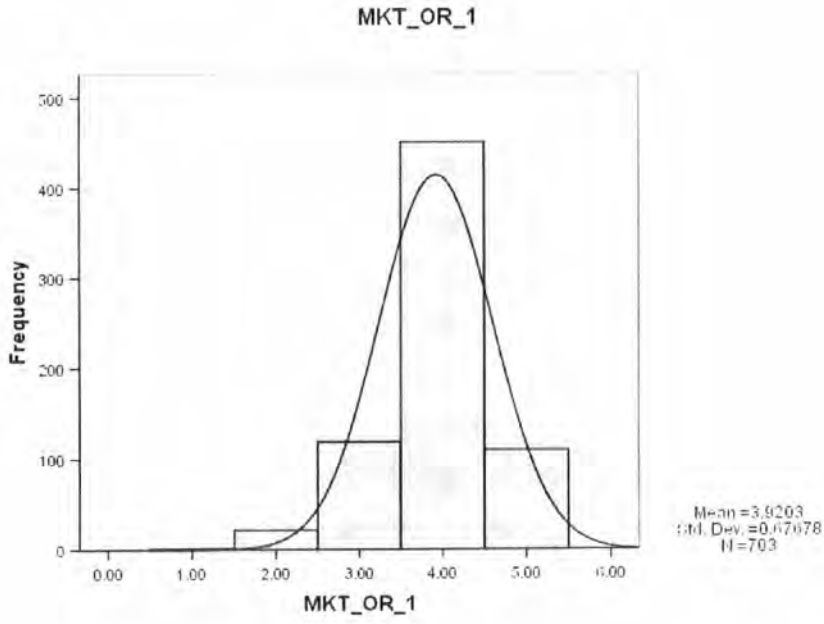

TRUST_5
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_5
Mean=4.1906
Std. Dev.=0.73618
N=793

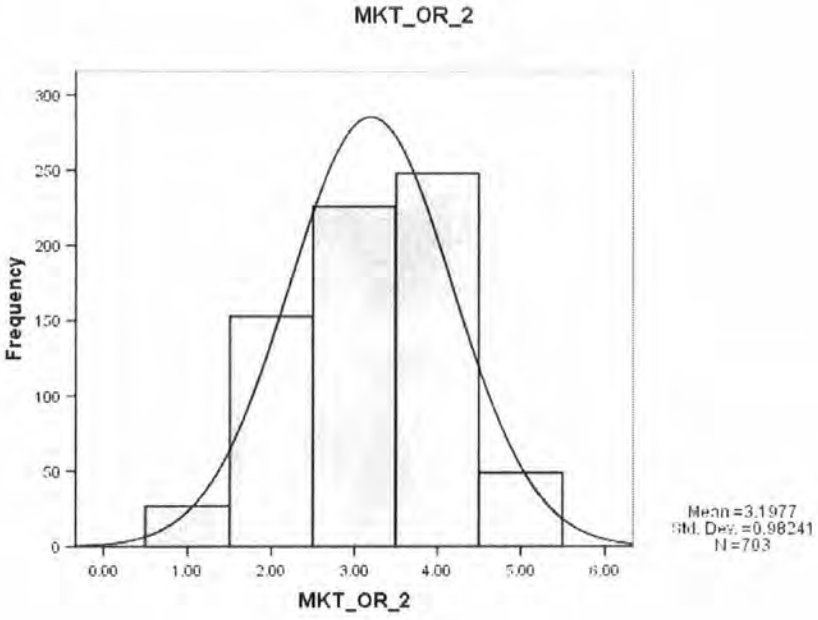

TRUST_6
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_6
Mean=4.1664
Std. Dev.=0.75252
N=703

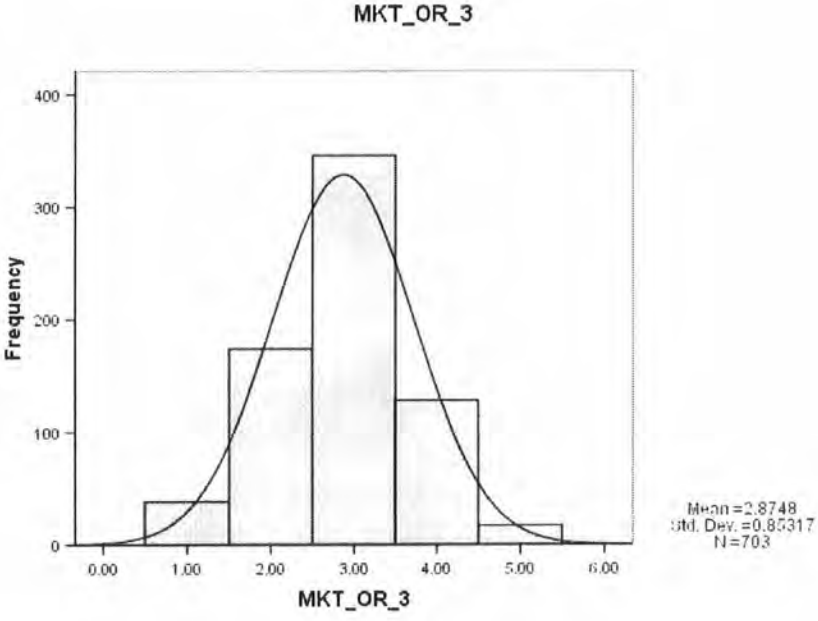

TRUST_7
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_7
Mean=4.165
Std. Dev.=0.71098
N=703

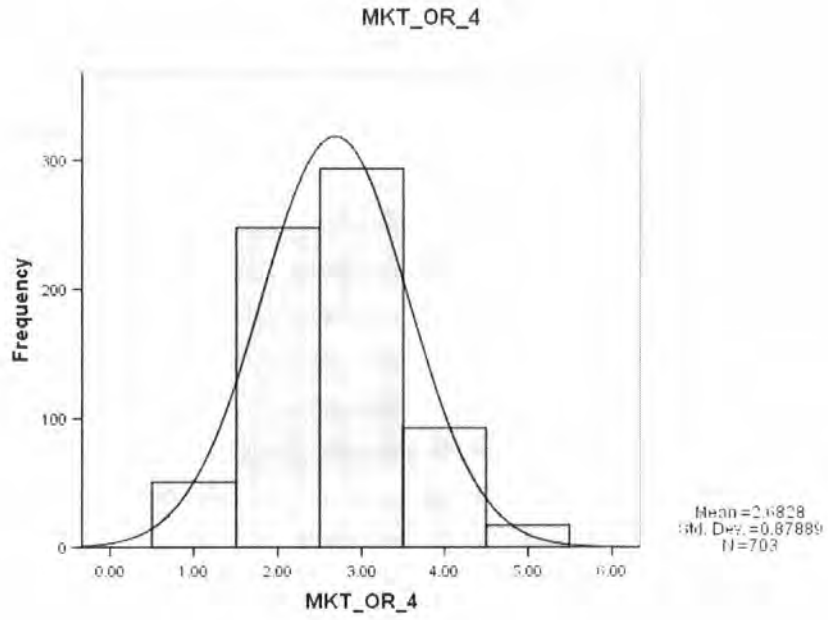

TRUST_8
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_8
Mean=3.4367
Std. Dev.=0.81382
N=703

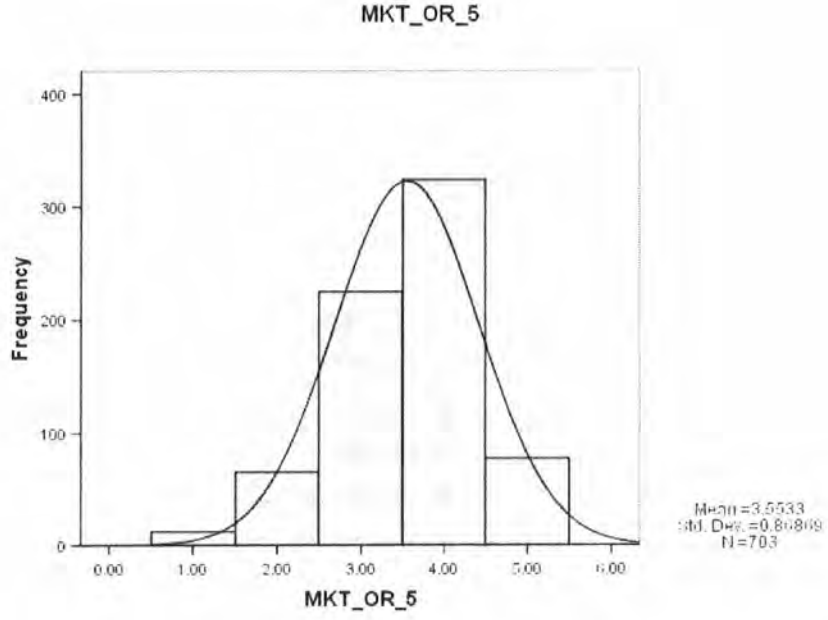

TRUST_9
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
TRUST_9
Mean =3.2859
Std. Dev. =0.80022
N =703

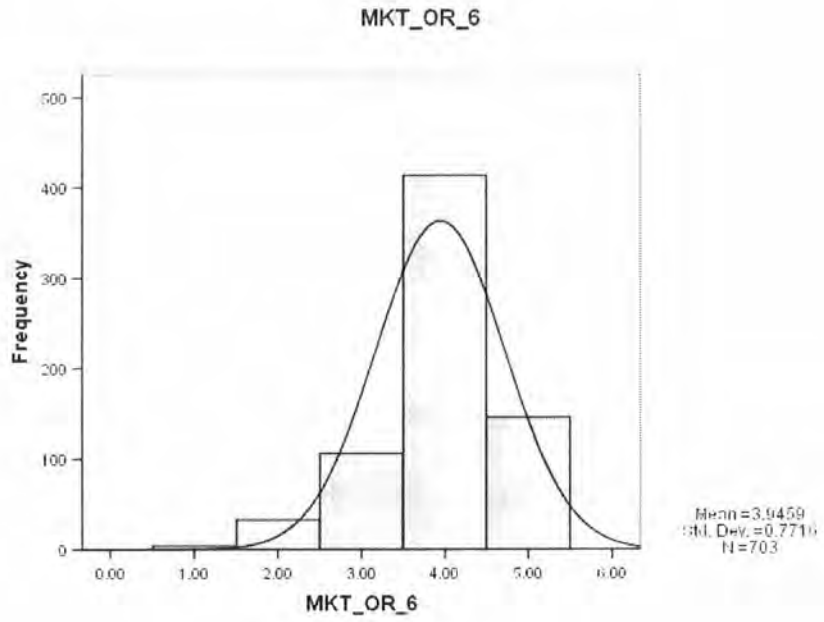

MKT_OR_1
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
MKT_OR_1
Mean =3.9203
Std. Dev. =0.67678
N =703

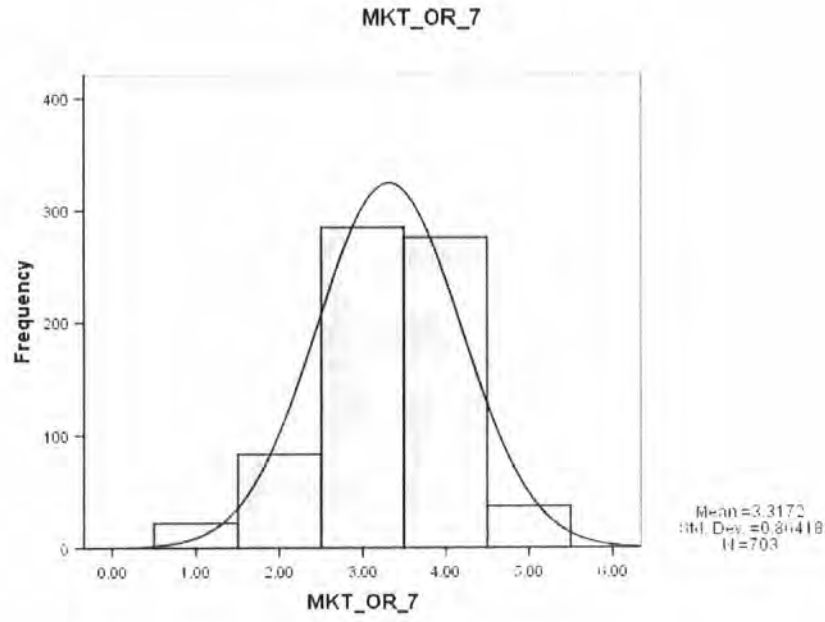

MKT_OR_2
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
MKT_OR_2
Mean=3.1977
Std. Dev.=0.98241
N=703


MKT_OR_3
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
MKT_OR_3
Mean=2.8748
Std. Dev.=0.85317
N=703

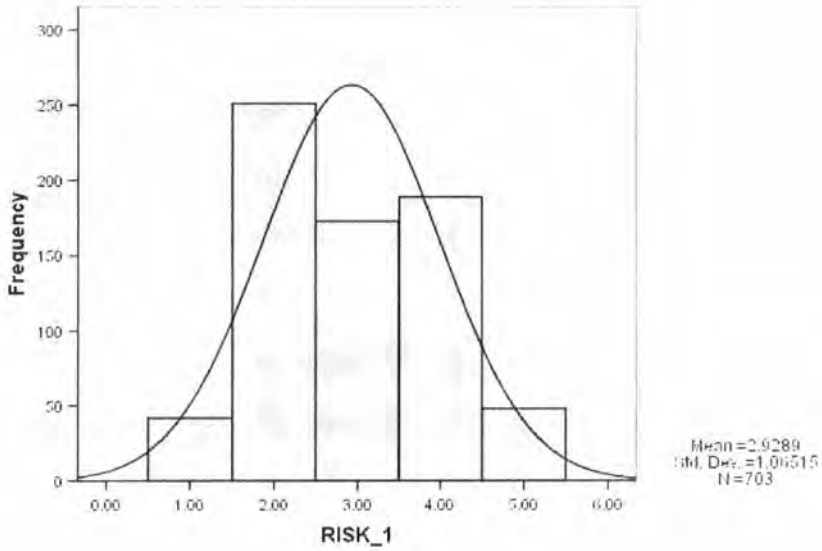

MKT_OR_4
Frequency
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
MKT_OR_4
Mean=2.6828
Std. Dev.=0.87889
N=703


MKT_OR_5
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
MKT_OR_5
Mean=3.5533
Std. Dev.=0.86869
N=703

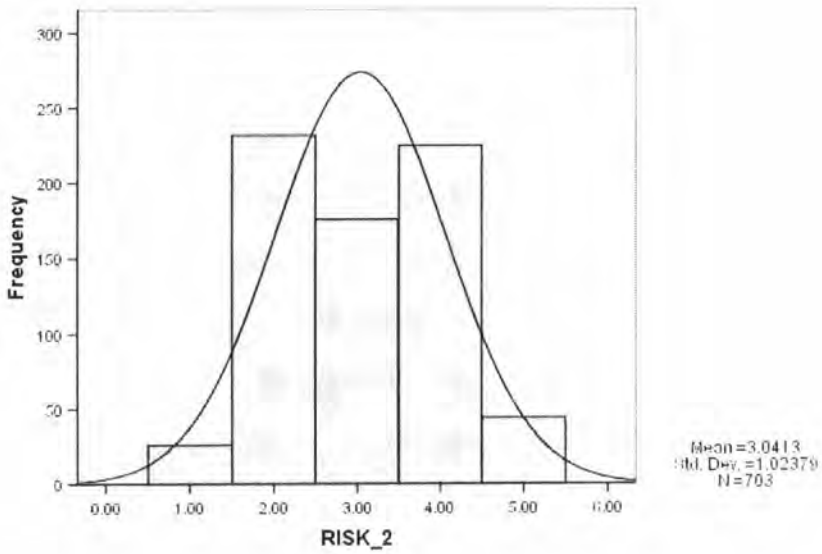

MKT_OR_6
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
MKT_OR_6
Mean=3.9459
Std. Dev.=0.7710
N=703

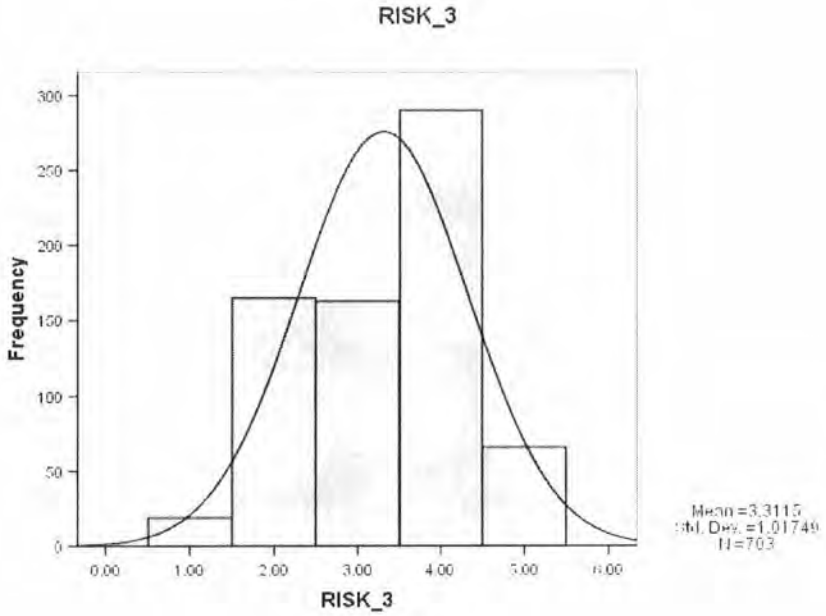

MKT_OR_7
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
MKT_OR_7
Mean=3.3172
Std. Dev.=0.80418
N=703

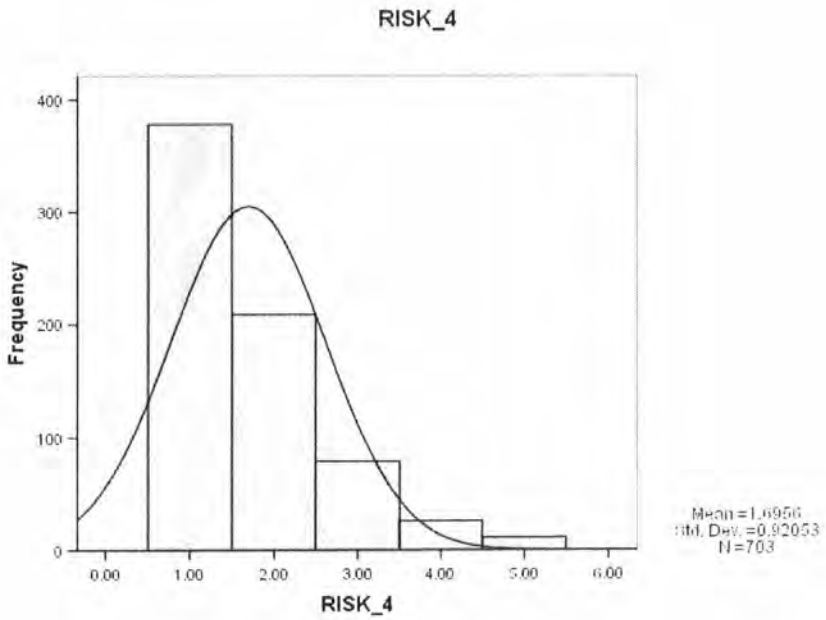
RISK_1

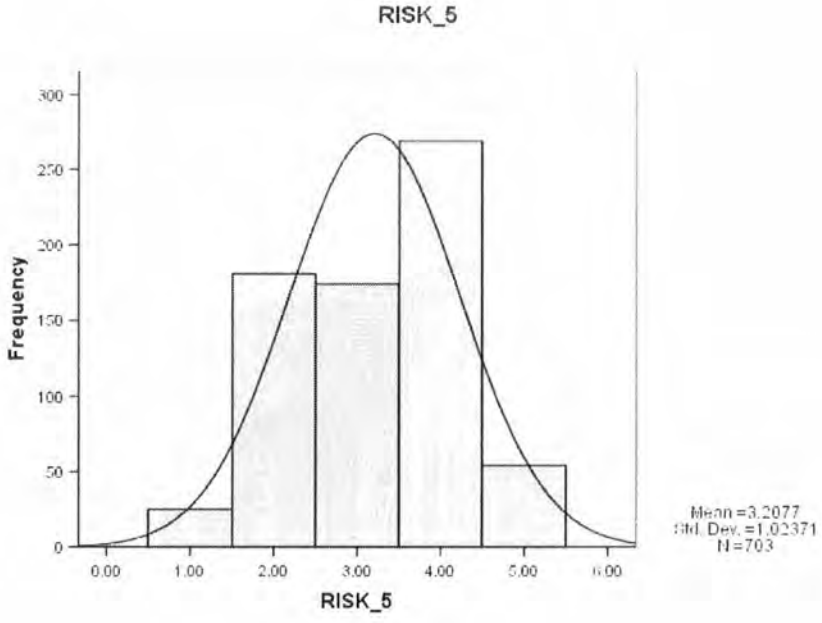

Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
RISK_1
Mean =2.9289
Std. Dev. =1.06515
N =703

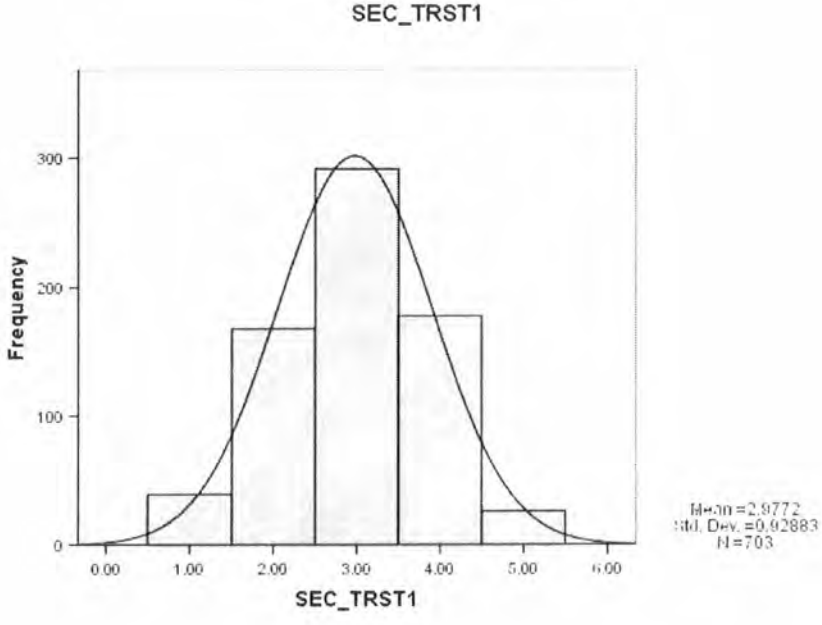
RISK_2

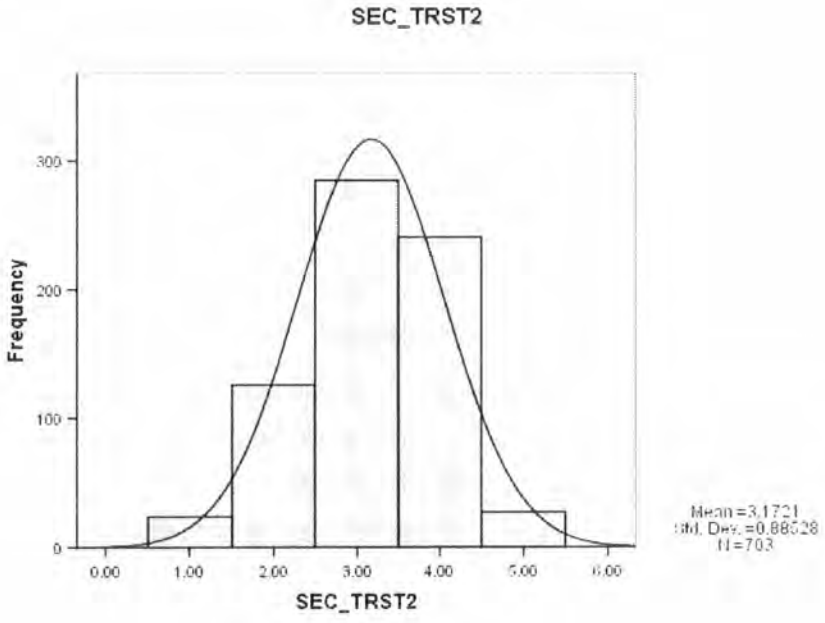

Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
RISK_2
Mean =3.0413
Std. Dev. =1.02379
N =703

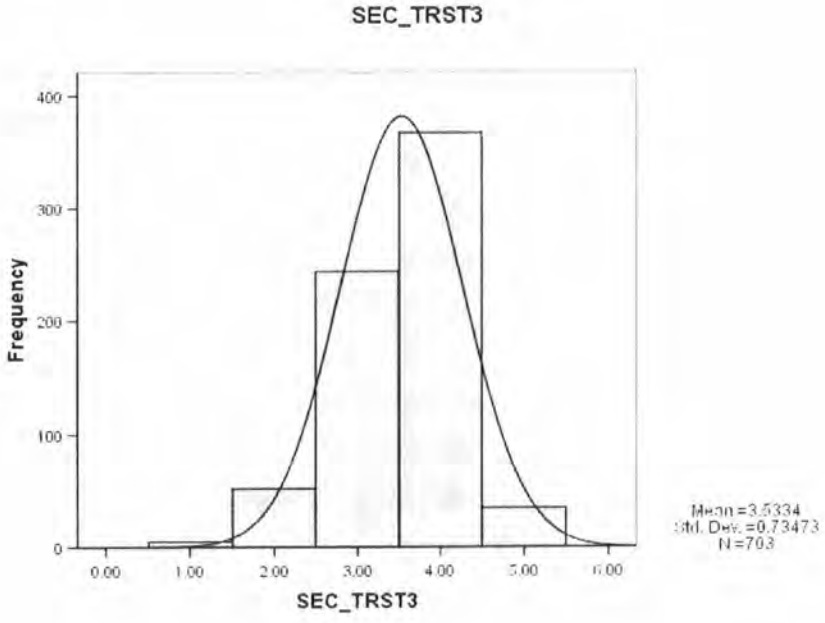

RISK_3
Frequency
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
RISK_3
Mean=3.3115
Std. Dev.=1.01749
N=703

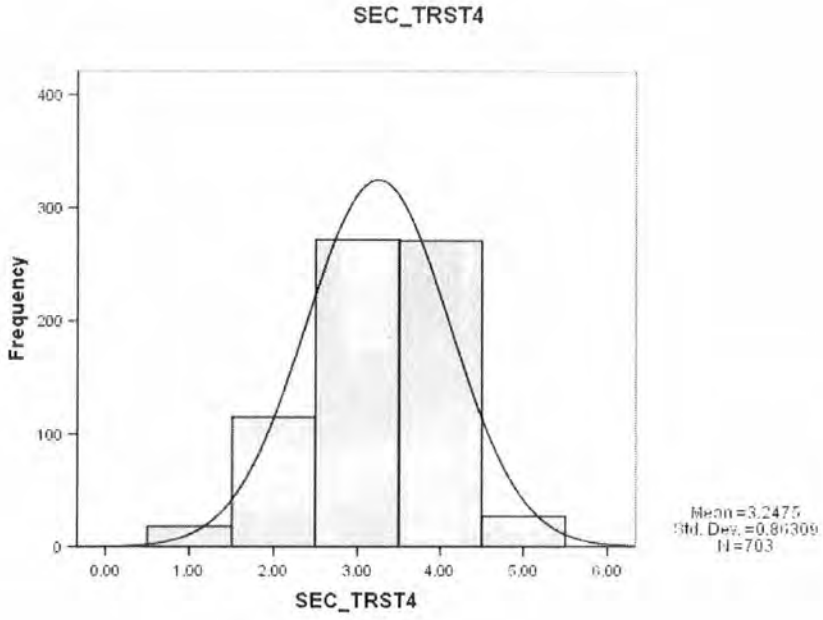

RISK_4
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
RISK_4
Mean=1.6956
Std. Dev.=0.92053
N=703

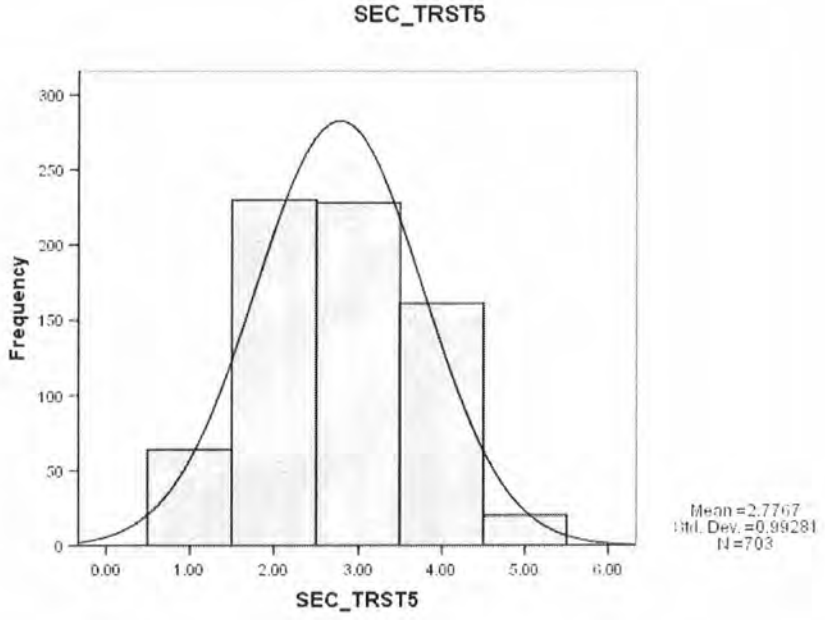

RISK_5
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
RISK_5
Mean =3.2077
Std. Dev. =1.02371
N =703

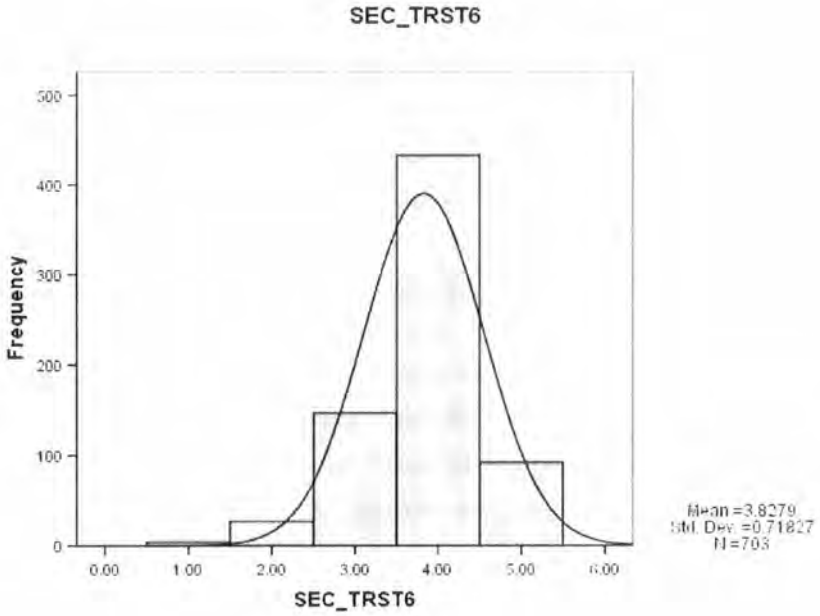

SEC_TRST1
Frequency
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SEC_TRST1
Mean =2.9772
Std. Dev. =0.92883
N =703

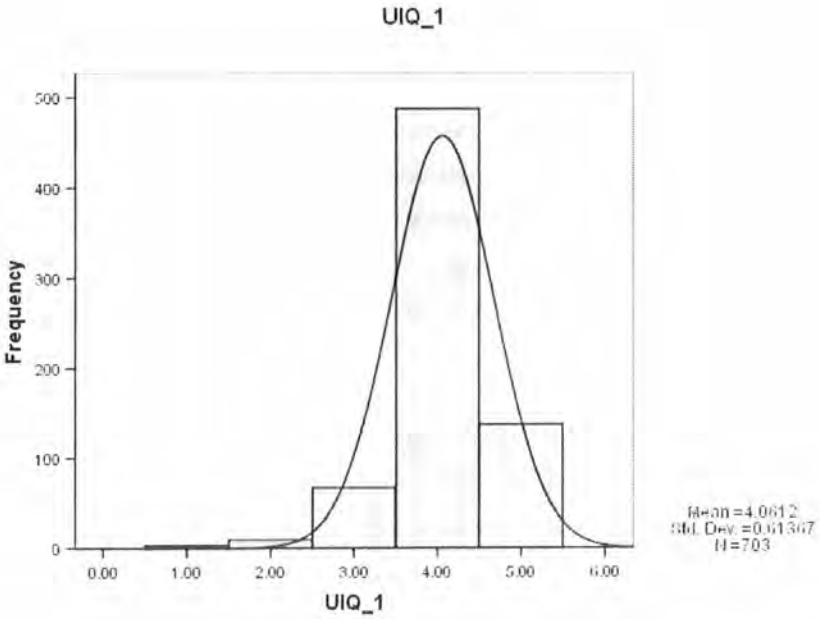

SEC_TRST2
Frequency
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SEC_TRST2
Mean=3.1721
Std. Dev.=0.88528
N=703

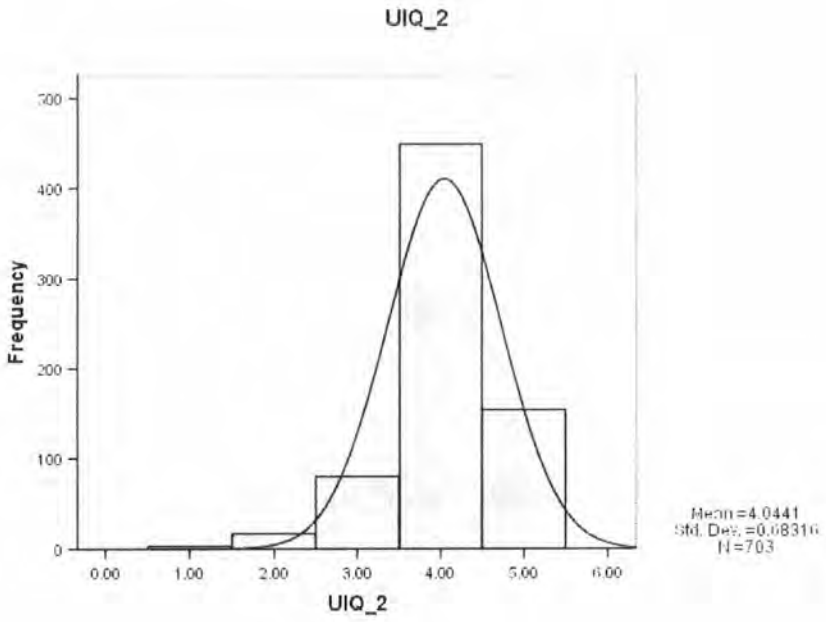

SEC_TRST3
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SEC_TRST3
Mean=3.5334
Std. Dev.=0.73473
N=703

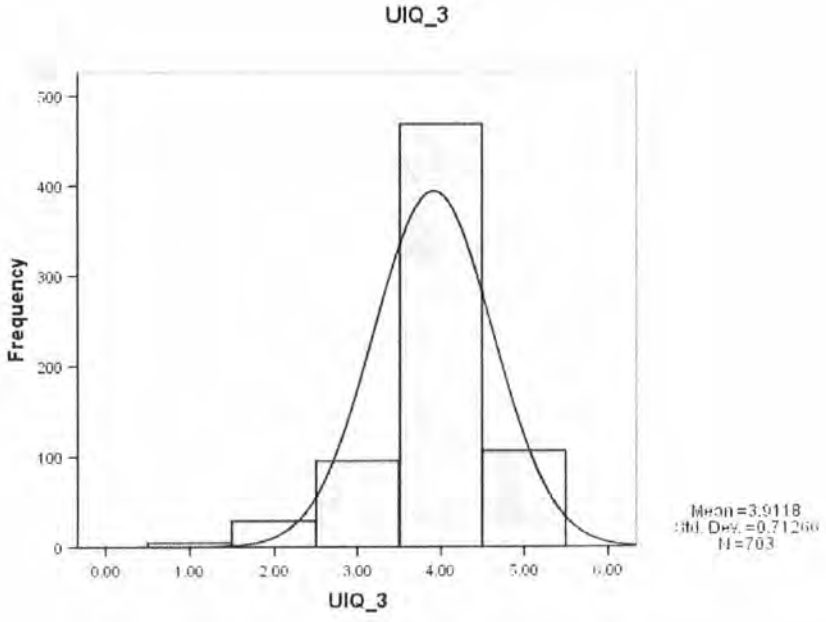

SEC_TRST4
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SEC_TRST4
Mean =3.2475
Std. Dev. =0.86309
N =703

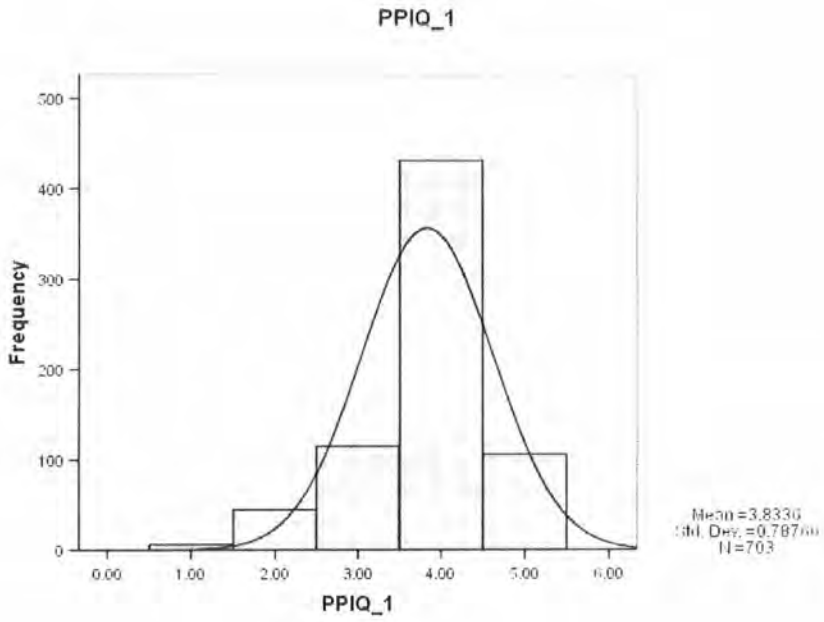

SEC_TRST5
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SEC_TRST5
Mean =2.7767
Std. Dev. =0.99281
N =703

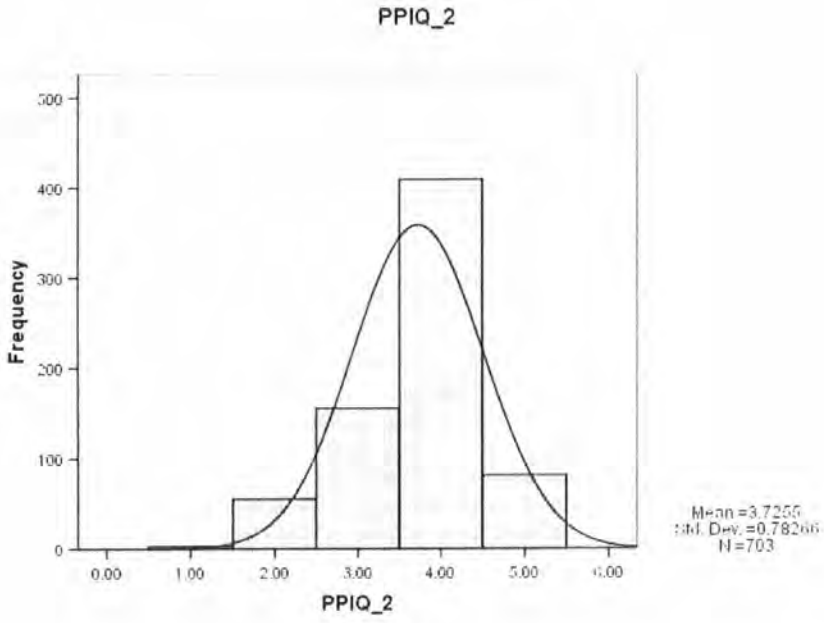

SEC_TRST6
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SEC_TRST6
Mean =3.8279
Std. Dev. =0.71827
N =703

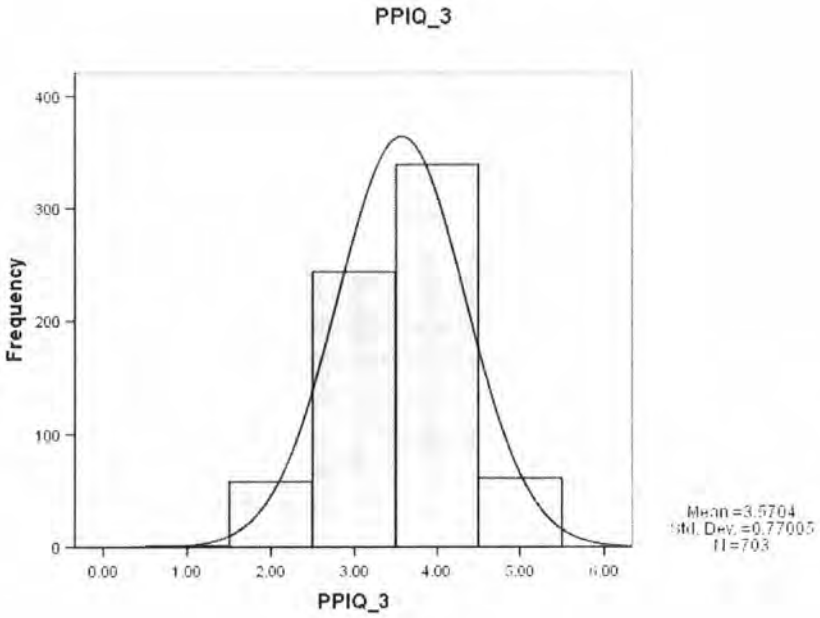

UIQ_1
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
UIQ_1
Mean =4.0612
Std. Dev. =0.61367
N =703

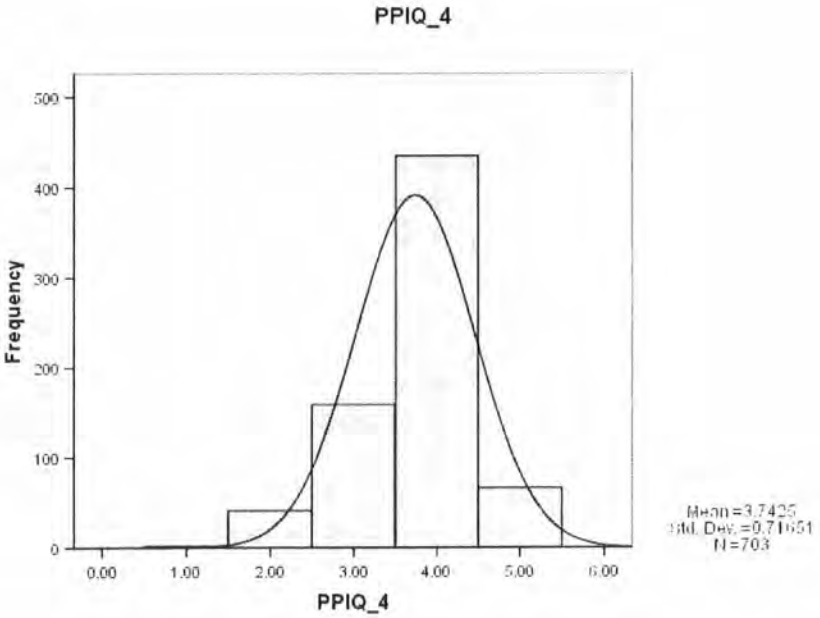

UIQ_2
Frequency
0
100
200
300
400
500
0.00
1.00
2.00
3.00
4.00
5.00
6.00
UIQ_2
Mean=4.0441
Std. Dev.=0.68316
N=703

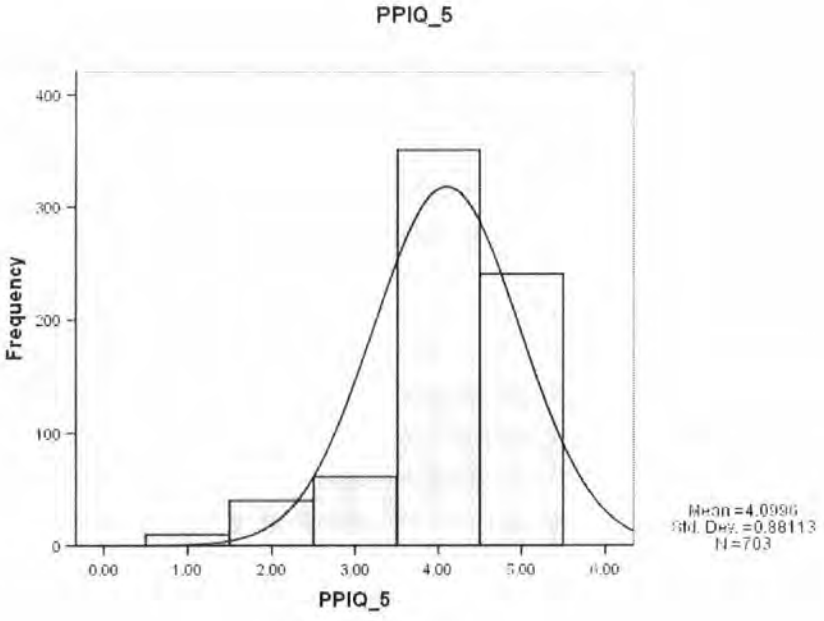

UIQ_3
Frequency
0
100
200
300
400
500
0.00
1.00
2.00
3.00
4.00
5.00
6.00
UIQ_3
Mean=3.9118
Std. Dev.=0.71266
N=703

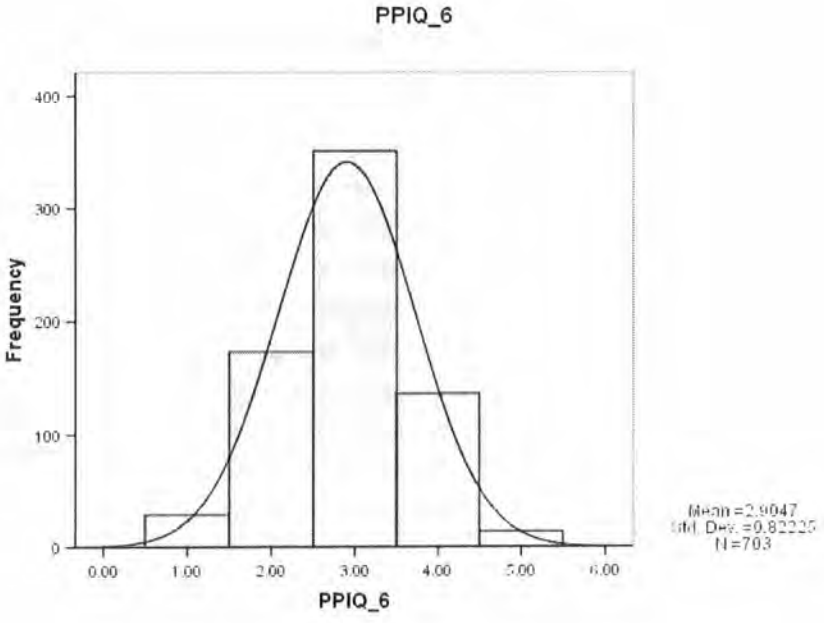

PPIQ_1
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
PPIQ_1
Mean =3.8330
Std. Dev. =0.78766
N =703


PPIQ_2
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
PPIQ_2
Mean =3.7255
Std. Dev. =0.78266
N =703

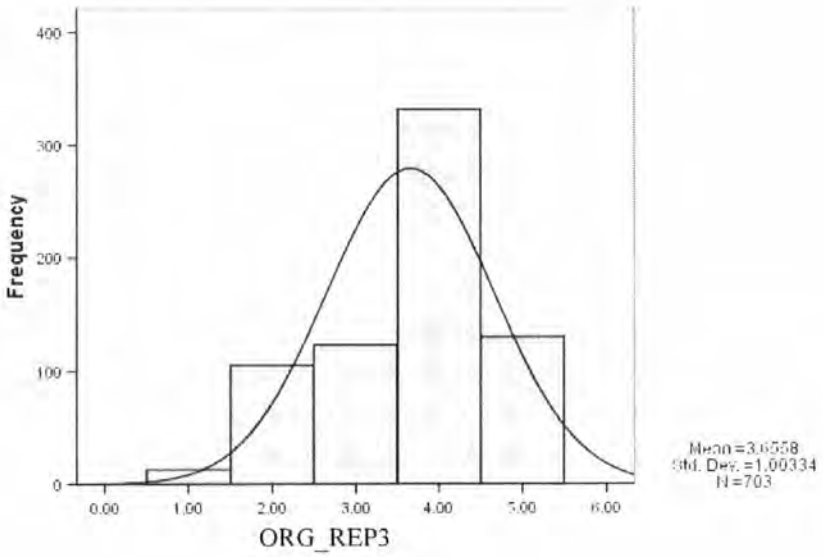

PPIQ_3
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
PPIQ_3
Mean=3.5704
Std. Dev.=0.77005
N=703


PPIQ_4
Frequency
500
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
PPIQ_4
Mean=3.7425
Std. Dev.=0.71651
N=703

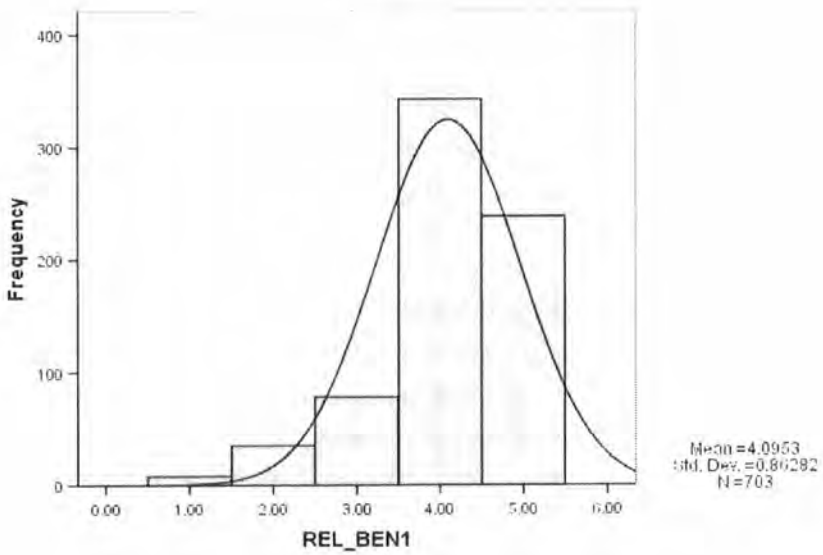

PPIQ_5
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
PPIQ_5
Mean =4.0996
Std. Dev. =0.88113
N =703

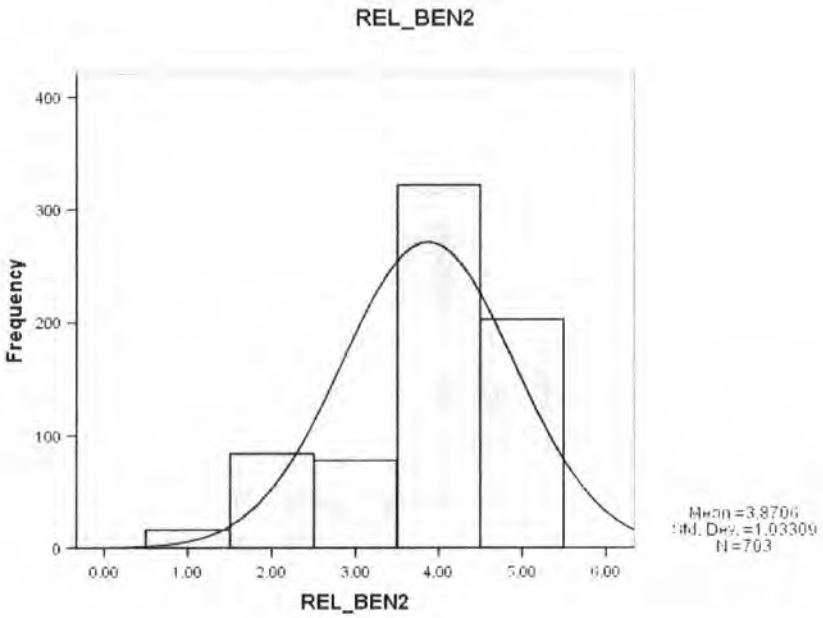

PPIQ_6
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
PPIQ_6
Mean =2.9047
Std. Dev. =0.82225
N =703

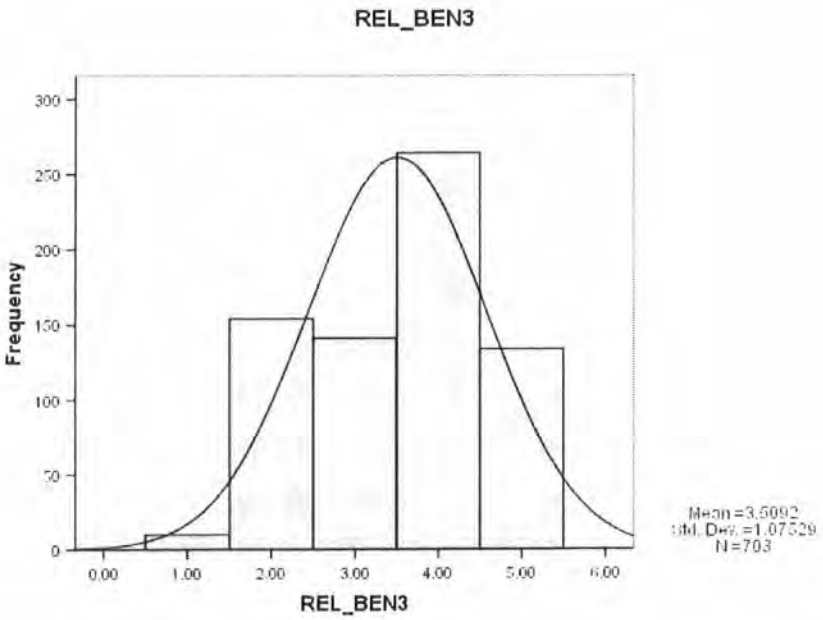
ORG_REP3

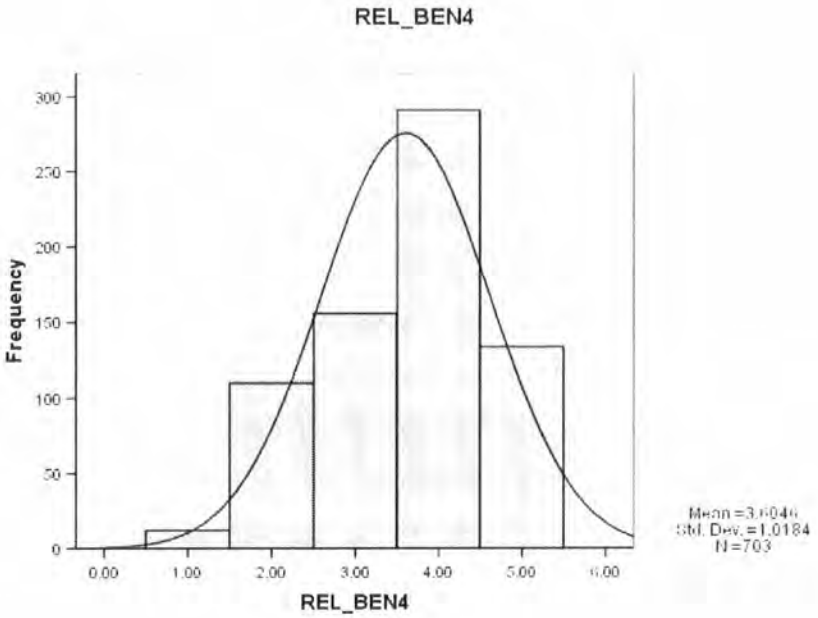


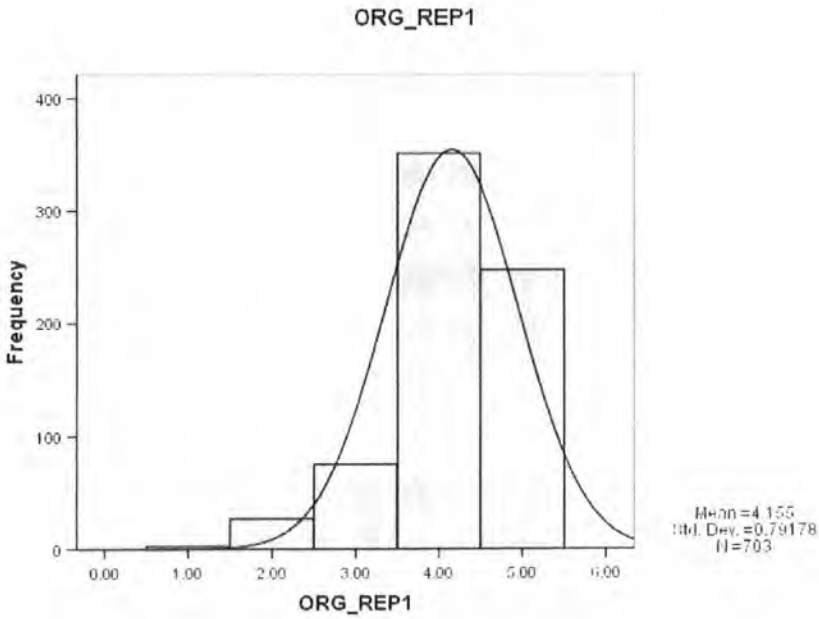
REL_BEN1

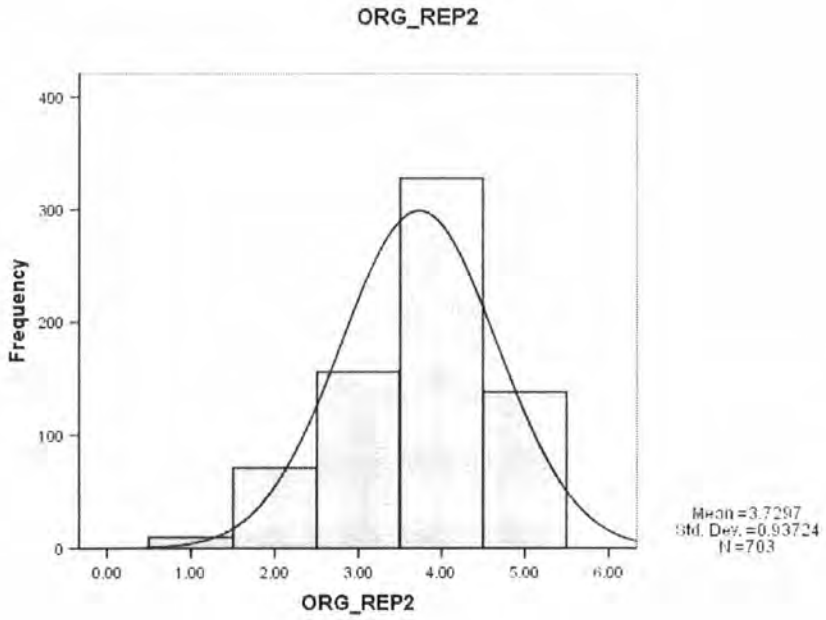


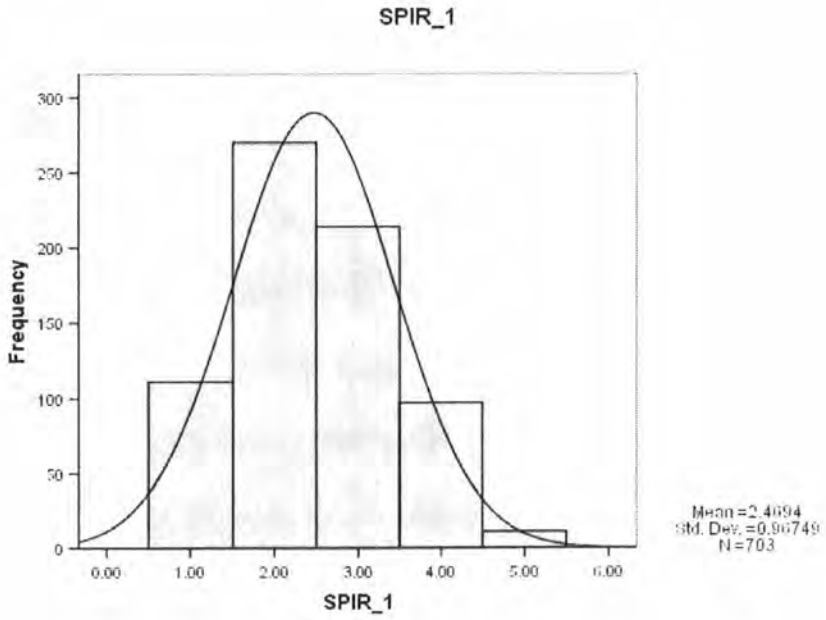

REL_BEN2
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
REL_BEN2
Mean =3.8706
Std. Dev. =1.03309
N =703

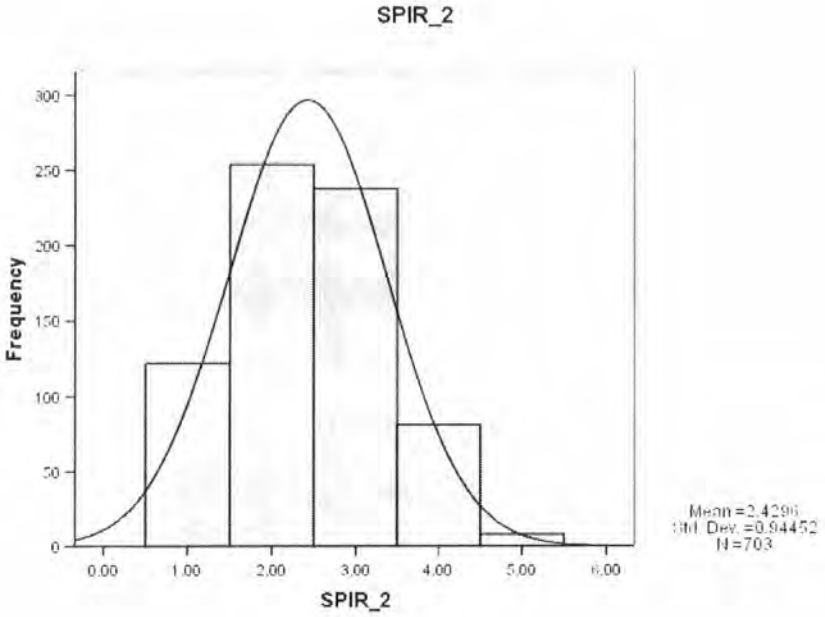

REL_BEN3
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
REL_BEN3
Mean =3.5092
Std. Dev. =1.07529
N =703

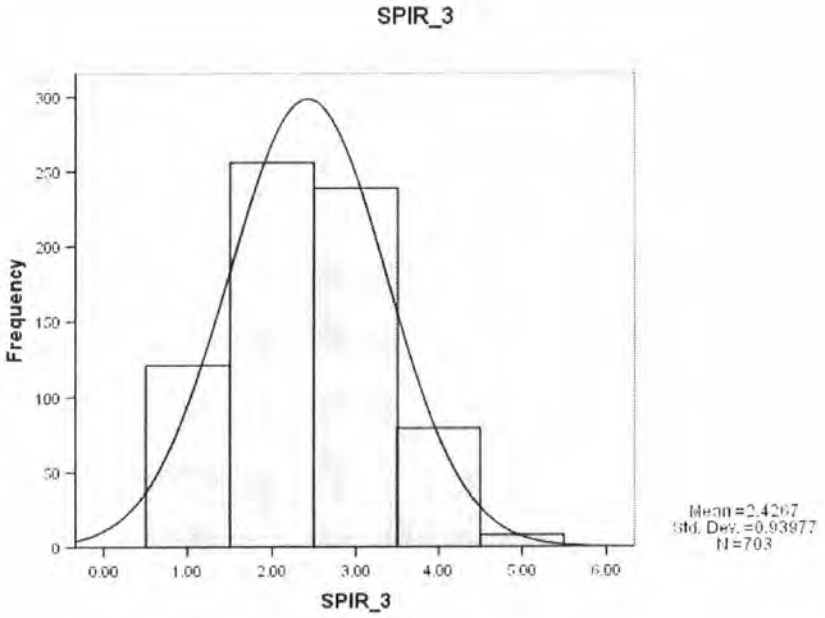

REL_BEN4
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
REL_BEN4
Mean =3.6046
Std. Dev. =1.0184
N =703


ORG_REP1
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
ORG_REP1
Mean =4.155
Std. Dev. =0.79178
N =703


ORG_REP2
Frequency
400
300
200
100
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
ORG_REP2
Mean =3.7297
Std. Dev. =0.93724
N =703


SPIR_1
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SPIR_1
Mean =2.4694
Std. Dev. =0.96749
N =703


SPIR_2
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SPIR_2
Mean=2.4296
Std. Dev.=0.94452
N=703


SPIR_3
Frequency
300
250
200
150
100
50
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
SPIR_3
Mean=2.4267
Std. Dev.=0.93977
N=703

APPENDIX E:

GLOSSARY OF TERMS

The following elaborates the different key terms used in this thesis:

- **E-Commerce:** The buying and selling of goods and services online.
- **E-commerce websites (Online stores/firms):** Internet media through which the customer interacts to purchase the product and service on the internet.
- **Online Customer:** Individuals who use the internet to purchase products and service from websites.
- **Online Vendors:** It is similar in terminology to e-commerce websites. It means companies/firms which sell products and services over the internet with the help of websites (Chen 2004).
- **Encryption:** It is the process of transforming information using an algorithm (called cipher) to make it unreadable to anyone except those possessing special knowledge.
- **Security:** Security is the measures that lead to a condition where it can be assumed that organisms are protected against danger or loss from other parties or sources.
- **Phishing**: It is a type of deception designed to steal valuable personal data, such as credit card numbers, passwords, account data, or other information on the internet. Phishing is typically carried out using e-mail (where the communication appears to come from a trusted website) or an instant message, although phone contact has been used as well [Source: http://www.usadata.com/marketing-glossary-eMarketing.html#P]
- **Privacy:** The state of maintaining secrecy or not revealing information to unwanted third parties.

- **Information Technology:** The technology of computers, telecommunications, and other devices that integrate data, equipment, personnel, and problem-solving methods in planning and controlling business activities. Information technology provides the means for collecting, storing, encoding, processing, analyzing, transmitting, receiving, and printing text, audio, or video information [Source: http://www.ncsu.edu/scrc/public/DEFINITIONS/G%20-%20I.html].
- **SPSS:** It stands for Statistical Package for the Social Sciences. It is software package used to conduct statistical analysis.
- **AMOS 6.0:** AMOS 6.0 is a powerful and easy-to-use structural equation modeling (SEM) software. It creates more realistic models than standard multivariate statistics or multiple regression models alone. Using Amos 6.0, it is possible to specify, estimate, assess, and present models in an intuitive path diagram to show hypothesized relationships among variables [Source: http://www.spss.com/AMOS/].
- **Structural Equation Modelling:** Structural Equation Modelling (SEM) is a family of statistical techniques which incorporates and integrates path analysis and factor analysis. In fact, use of SEM software for a model in which each variable has only one indicator is a type of path analysis. Use of SEM software for a model in which each variable has multiple indicators but there are no direct effects (arrows) connecting the variables is a type of factor analysis. Usually, however, SEM refers to a hybrid model with both multiple indicators for each variable (called latent variables or factors), and paths specified connecting the latent variables. [Source: http://faculty.chass.ncsu.edu/garson/PA765/structur.htm#concepts].

APPENDIX F: UNTRANSFORMED DATA TEST OF HOMOGENEITY OF VARIANCE

		Levene Statistic	df1	df2	Sig.
TRUST_1	Based on Mean	.006	1	701	.939
	Based on Median	.003	1	701	.958
	Based on Median and with adjusted df	.003	1	700.505	.958
	Based on trimmed mean	.010	1	701	.920
TRUST_2	Based on Mean	.030	1	701	.861
	Based on Median	.000	1	701	.998
	Based on Median and with adjusted df	.000	1	700.622	.998
	Based on trimmed mean	.072	1	701	.788
TRUST_3	Based on Mean	1.287	1	701	.257
	Based on Median	.230	1	701	.632
	Based on Median and with adjusted df	.230	1	698.353	.632
	Based on trimmed mean	1.322	1	701	.251
TRUST_4	Based on Mean	1.929	1	701	.165
	Based on Median	.472	1	701	.492
	Based on Median and with adjusted df	.472	1	698.542	.492
	Based on trimmed mean	2.357	1	701	.125
TRUST_5	Based on Mean	2.462	1	701	.117
	Based on Median	2.011	1	701	.157
	Based on Median and with adjusted df	2.011	1	699.291	.157
	Based on trimmed mean	1.902	1	701	.168
TRUST_6	Based on Mean	1.049	1	701	.306
	Based on Median	1.417	1	701	.234
	Based on Median and with adjusted df	1.417	1	699.141	.234
	Based on trimmed mean	1.319	1	701	.251
TRUST_7	Based on Mean	.487	1	701	.485
	Based on Median	.161	1	701	.688
	Based on Median and with adjusted df	.161	1	698.274	.688
	Based on trimmed mean	.716	1	701	.398

		Levene Statistic	df1	df2	Sig.
TRUST_8	Based on Mean	.002	1	701	.962
	Based on Median	.074	1	701	.785
	Based on Median and with adjusted df	.074	1	688.203	.785
	Based on trimmed mean	.000	1	701	.992
TRUST_9	Based on Mean	.000	1	701	.998
	Based on Median	.002	1	701	.964
	Based on Median and with adjusted df	.002	1	701.000	.964
	Based on trimmed mean	.003	1	701	.955
MKT_OR_1	Based on Mean	.401	1	701	.527
	Based on Median	.002	1	701	.964
	Based on Median and with adjusted df	.002	1	700.994	.964
	Based on trimmed mean	.477	1	701	.490
MKT_OR_2	Based on Mean	.207	1	701	.649
	Based on Median	.117	1	701	.732
	Based on Median and with adjusted df	.117	1	698.203	.732
	Based on trimmed mean	.266	1	701	.606
MKT_OR_3	Based on Mean	6.601	1	701	.010
	Based on Median	4.145	1	701	.042
	Based on Median and with adjusted df	4.145	1	699.350	.042
	Based on trimmed mean	7.113	1	701	.008
MKT_OR_4	Based on Mean	.974	1	701	.324
	Based on Median	.826	1	701	.364
	Based on Median and with adjusted df	.826	1	700.915	.364
	Based on trimmed mean	.952	1	701	.330
MKT_OR_5	Based on Mean	.567	1	701	.452
	Based on Median	1.517	1	701	.219
	Based on Median and with adjusted df	1.517	1	700.320	.219
	Based on trimmed mean	.754	1	701	.386
MKT_OR_6	Based on Mean	1.701	1	701	.193
	Based on Median	.015	1	701	.901
	Based on Median and with adjusted df	.015	1	700.373	.901
	Based on trimmed mean	.014	1	701	.907

		Levene Statistic	df1	df2	Sig.
MKT_OR_7	Based on Mean	.233	1	701	.629
	Based on Median	.044	1	701	.834
	Based on Median and with adjusted df	.044	1	700.958	.834
	Based on trimmed mean	.303	1	701	.582
RISK_1	Based on Mean	.009	1	701	.922
	Based on Median	.035	1	701	.851
	Based on Median and with adjusted df	.035	1	700.617	.851
	Based on trimmed mean	.017	1	701	.896
RISK_2	Based on Mean	.177	1	701	.674
	Based on Median	.051	1	701	.821
	Based on Median and with adjusted df	.051	1	696.246	.821
	Based on trimmed mean	.117	1	701	.733
RISK_3	Based on Mean	.505	1	701	.478
	Based on Median	.383	1	701	.536
	Based on Median and with adjusted df	.383	1	630.166	.536
	Based on trimmed mean	.413	1	701	.521
RISK_4	Based on Mean	4.833	1	701	.028
	Based on Median	1.065	1	701	.303
	Based on Median and with adjusted df	1.065	1	688.079	.303
	Based on trimmed mean	4.189	1	701	.041
RISK_5	Based on Mean	.030	1	701	.863
	Based on Median	.082	1	701	.775
	Based on Median and with adjusted df	.082	1	624.219	.775
	Based on trimmed mean	.017	1	701	.896
SEC_TRST1	Based on Mean	1.136	1	701	.287
	Based on Median	.466	1	701	.495
	Based on Median and with adjusted df	.466	1	700.990	.495
	Based on trimmed mean	.753	1	701	.386
SEC_TRST2	Based on Mean	2.664	1	701	.103
	Based on Median	2.692	1	701	.101
	Based on Median and with adjusted df	2.692	1	696.935	.101
	Based on trimmed mean	3.077	1	701	.080

		Levene Statistic	df1	df2	Sig.
SEC_TRST3	Based on Mean	.189	1	701	.663
	Based on Median	.440	1	701	.507
	Based on Median and with adjusted df	.440	1	699.977	.507
	Based on trimmed mean	.173	1	701	.677
SEC_TRST4	Based on Mean	.004	1	701	.950
	Based on Median	.025	1	701	.873
	Based on Median and with adjusted df	.025	1	698.987	.873
	Based on trimmed mean	.005	1	701	.943
SEC_TRST5	Based on Mean	1.335	1	701	.248
	Based on Median	1.343	1	701	.247
	Based on Median and with adjusted df	1.343	1	700.888	.247
	Based on trimmed mean	1.418	1	701	.234
SEC_TRST6	Based on Mean	4.291	1	701	.039
	Based on Median	.162	1	701	.688
	Based on Median and with adjusted df	.162	1	691.893	.688
	Based on trimmed mean	3.937	1	701	.048
UIQ_1	Based on Mean	.282	1	701	.595
	Based on Median	.287	1	701	.592
	Based on Median and with adjusted df	.287	1	697.430	.592
	Based on trimmed mean	.602	1	701	.438
UIQ_2	Based on Mean	1.978	1	701	.160
	Based on Median	3.154	1	701	.076
	Based on Median and with adjusted df	3.154	1	697.108	.076
	Based on trimmed mean	2.726	1	701	.099
UIQ_3	Based on Mean	1.416	1	701	.234
	Based on Median	.344	1	701	.558
	Based on Median and with adjusted df	.344	1	699.470	.558
	Based on trimmed mean	1.207	1	701	.272
PPIQ_1	Based on Mean	.283	1	701	.595
	Based on Median	.271	1	701	.603
	Based on Median and with adjusted df	.271	1	695.183	.603
	Based on trimmed mean	.108	1	701	.742

		Levene Statistic	df1	df2	Sig.
PPIQ_2	Based on Mean	2.231	1	701	.136
	Based on Median	1.372	1	701	.242
	Based on Median and with adjusted df	1.372	1	699.769	.242
	Based on trimmed mean	2.275	1	701	.132
PPIQ_3	Based on Mean	2.093	1	701	.148
	Based on Median	.650	1	701	.420
	Based on Median and with adjusted df	.650	1	700.439	.420
	Based on trimmed mean	2.077	1	701	.150
PPIQ_4	Based on Mean	2.163	1	701	.142
	Based on Median	.889	1	701	.346
	Based on Median and with adjusted df	.889	1	699.238	.346
	Based on trimmed mean	2.392	1	701	.122
PPIQ_5	Based on Mean	1.827	1	701	.177
	Based on Median	1.564	1	701	.212
	Based on Median and with adjusted df	1.564	1	700.625	.212
	Based on trimmed mean	1.440	1	701	.231
PPIQ_6	Based on Mean	1.120	1	701	.290
	Based on Median	.214	1	701	.644
	Based on Median and with adjusted df	.214	1	699.740	.644
	Based on trimmed mean	.859	1	701	.354
ORG_REP3	Based on Mean	.066	1	701	.797
	Based on Median	.034	1	701	.853
	Based on Median and with adjusted df	.034	1	700.958	.853
	Based on trimmed mean	.233	1	701	.629
REL_BEN1	Based on Mean	1.329	1	701	.249
	Based on Median	.089	1	701	.766
	Based on Median and with adjusted df	.089	1	700.204	.766
	Based on trimmed mean	1.309	1	701	.253
REL_BEN2	Based on Mean	11.876	1	701	.001
	Based on Median	1.528	1	701	.217
	Based on Median and with adjusted df	1.528	1	691.454	.217
	Based on trimmed mean	6.597	1	701	.010

		Levene Statistic	df1	df2	Sig.
REL_BEN3	Based on Mean	.030	1	701	.863
	Based on Median	2.321	1	701	.128
	Based on Median and with adjusted df	2.321	1	700.816	.128
	Based on trimmed mean	.075	1	701	.784
REL_BEN4	Based on Mean	1.210	1	701	.272
	Based on Median	.125	1	701	.724
	Based on Median and with adjusted df	.125	1	700.068	.724
	Based on trimmed mean	.931	1	701	.335
ORG_REP1	Based on Mean	.063	1	701	.801
	Based on Median	.554	1	701	.457
	Based on Median and with adjusted df	.554	1	699.005	.457
	Based on trimmed mean	.229	1	701	.633
ORG_REP2	Based on Mean	.996	1	701	.319
	Based on Median	.976	1	701	.323
	Based on Median and with adjusted df	.976	1	700.950	.323
	Based on trimmed mean	.857	1	701	.355
SPIR_1	Based on Mean	.641	1	701	.424
	Based on Median	.001	1	701	.973
	Based on Median and with adjusted df	.001	1	700.133	.973
	Based on trimmed mean	.556	1	701	.456
SPIR_2	Based on Mean	.214	1	701	.644
	Based on Median	.081	1	701	.776
	Based on Median and with adjusted df	.081	1	700.615	.776
	Based on trimmed mean	.151	1	701	.697
SPIR_3	Based on Mean	.298	1	701	.585
	Based on Median	.029	1	701	.864
	Based on Median and with adjusted df	.029	1	700.713	.864
	Based on trimmed mean	.224	1	701	.636

APPENDIX G:

CORRELATION OF THE ITEMS IN THE QUESTIONNAIRE

CORRELATION OF THE ITEMS IN THE QUESTIONNAIRE

	TRUST_1	TRUST_2	TRUST_3	TRUST_4	TRUST_5	TRUST_6	TRUST_7	TRUST_8	TRUST_9	MKT_OR_1	MKT_OR_2	MKT_OR_3	MKT_OR_4	Trans_MKT_OR_5	MKT_OR_6	MKT_OR_7	RISK_1	RISK_2	RISK_3	RISK_4	RISK_5	SEC_TRST1	SEC_TRST2	SEC_TRST3	SEC_TRST4	SEC_TRST5	SEC_TRST6	UIQ_1	UIQ_2	UIQ_3	PPIQ_1	PPIQ_2	PPIQ_3	PPIQ_4	PPIQ_5	PPIQ_6	ORG_REP3	REL_BEN1	REL_BEN2	REL_BEN3	REL_BEN4	ORG_REP1	ORG_REP2	SPIR_1	SPIR_2	SPIR_3
TRUST_1	1																																												
TRUST_2	.66**	1																																												
TRUST_3	.34**	.333**	1																																										
TRUST_4	.31**	.250**	.228**	1																																									
TRUST_5	.42**	.351**	.310**	.409**	1																																								
TRUST_6	.36**	.260**	.197**	.286**	.416**	1																																							
TRUST_7	.45**	.309**	.267**	.290**	.462**	.364**	1																																					
TRUST_8	.23**	.281**	.232**	.106**	.229**	.128**	.230**	1																																				
TRUST_9	.21**	.252**	.214**	.221**	.253**	.129**	.212**	.589**	1																																			
MKT_OR_1	.24**	.209**	.160**	.165**	.251**	.158**	.249**	.322**	.310**	1																																			
MKT_OR_2	.14**	.166**	.127**	.094*	.119**	.098**	.184**	.353**	.332**	.242**	1																																		
MKT_OR_3	.21**	.238**	.182**	.143**	.170**	.077*	.159**	.413**	.459**	.175**	.558**	1																																	
MKT_OR_4	.13**	.144**	.159**	.097*	.144**	.041	.079*	.272**	.344**	.125**	.352**	.509**	1																																
Trans_MKT_OR_5	-.01	.032	.102**	.008	-.020	-.051	-.106**	.137**	.148**	-.017	.143**	.220**	.350**	1																															
MKT_OR_6	.31**	.241**	.213**	.198**	.281**	.204**	.281**	.169**	.256**	.183**	.146**	.243**	.181**	.008	1																														
MKT_OR_7	.28**	.235**	.172**	.156**	.250**	.147**	.246**	.297**	.365**	.194**	.220**	.336**	.318**	.198**	.340**	1																													
RISK_1	-.18**	-.200**	-.218**	-.214**	-.259**	-.099**	-.253**	-.107**	-.095*	-.032	-.003	-.016	-.009	-.118**	-.045	-.085*	1																													
RISK_2	-.158**	-.193**	-.217**	-.177**	-.250**	-.090*	-.191**	-.158**	-.183**	-.030	-.004	-.038	-.090*	-.126**	-.095*	-.152**	.634**	1																												
RISK_3	-.164**	-.202**	-.154**	-.166**	-.218**	-.051	-.113**	-.108**	-.159**	-.022	-.035	-.076*	-.131**	-.227**	-.073	-.163**	.490**	.614**	1																											
RISK_4	-.311**	-.250**	-.175**	-.187**	-.295**	-.248**	-.280**	-.022	.006	-.121**	.073	.098**	.101**	.053	-.156**	-.099**	.316**	.317**	.284**	1																										
RISK_5	-.101**	-.112**	-.175**	-.145**	-.158**	-.001	-.084*	-.073	-.102**	-.040	.026	-.047	-.064	-.180**	-.128**	-.123**	.327**	.447**	.485**	.230**	1																								
SEC_TRST1	.094*	.077*	.062	.143**	.096*	.077*	.180**	.190**	.246**	.074*	.152**	.203**	.215**	.104**	.000	.172**	-.062	-.044	-.036	.079*	.011	1																							
SEC_TRST2	.150**	.178**	.093*	.170**	.118**	.077*	.140**	.200**	.258**	.120**	.164**	.178**	.167**	.057	.024	.115**	-.085*	-.061	-.066	-.006	-.014	.473**	1																						
SEC_TRST3	.293**	.303**	.276**	.321**	.439**	.192**	.426**	.306**	.307**	.194**	.169**	.204**	.223**	.057	.182**	.251**	-.366**	-.296**	-.249**	-.181**	-.157**	.354**	.336**	1																				
SEC_TRST4	.143**	.178**	.189**	.167**	.266**	.116**	.242**	.225**	.265**	.139**	.105**	.141**	.177**	.050	.080*	.156**	-.257**	-.220**	-.172**	-.057	-.134**	.286**	.224**	.486**	1																			
SEC_TRST5	.205**	.199**	.161**	.150**	.214**	.149**	.252**	.216**	.247**	.096*	.120**	.160**	.235**	.078*	.073	.212**	-.322**	-.229**	-.213**	-.020	-.122**	.293**	.207**	.429**	.460**	1																		
SEC_TRST6	.325**	.332**	.261**	.302**	.342**	.306**	.357**	.204**	.202**	.183**	.171**	.134**	.139**	-.057	.194**	.201**	-.202**	-.209**	-.162**	-.275**	-.116**	.103**	.143**	.309**	.250**	.234**	1																	
UIQ_1	.403**	.391**	.223**	.329**	.419**	.326**	.421**	.212**	.252**	.324**	.126**	.126**	.110**	-.027	.287**	.232**	-.203**	-.204**	-.161**	-.333**	-.152**	.050	.172**	.297**	.160**	.116**	.525**	1																
UIQ_2	.264**	.269**	.202**	.257**	.385**	.241**	.316**	.247**	.284**	.257**	.176**	.173**	.135**	.005	.250**	.181**	-.139**	-.155**	-.145**	-.178**	-.129**	.080*	.122**	.274**	.201**	.109**	.332**	.530**	1														
UIQ_3	.208**	.209**	.177**	.219**	.233**	.174**	.251**	.263**	.317**	.222**	.200**	.197**	.149**	.020	.230**	.207**	-.168**	-.161**	-.123**	-.121**	-.115**	.098**	.155**	.250**	.191**	.109**	.293**	.442**	.655**	1													
PPIQ_1	.277**	.299**	.184**	.183**	.256**	.282**	.281**	.287**	.279**	.210**	.267**	.251**	.115**	.042	.175**	.199**	-.140**	-.200**	-.170**	-.164**	-.162**	.137**	.166**	.257**	.113**	.138**	.324**	.372**	.432**	.441**	1											
PPIQ_2	.238**	.320**	.232**	.204**	.257**	.232**	.235**	.300**	.317**	.233**	.328**	.251**	.151**	.086*	.185**	.236**	-.105**	-.164**	-.214**	-.146**	-.115**	.117**	.144**	.322**	.187**	.115**	.321**	.361**	.468**	.472**	.605**	1									
PPIQ_3	.271**	.287**	.250**	.199**	.253**	.210**	.231**	.352**	.391**	.188**	.227**	.295**	.160**	.102**	.165**	.269**	-.126**	-.189**	-.147**	-.082*	-.172**	.183**	.150**	.312**	.210**	.174**	.289**	.306**	.372**	.367**	.467**	.589**	1								
PPIQ_4	.270**	.286**	.181**	.254**	.242**	.193**	.240**	.225**	.273**	.228**	.141**	.141**	.090*	.027	.142**	.215**	-.123**	-.114**	-.124**	-.138**	-.154**	.090*	.160**	.275**	.145**	.125**	.307**	.347**	.355**	.413**	.416**	.473**	.548**	1							
PPIQ_5	.112**	.057	.052	.150**	.116**	.155**	.169**	.009	.057	.042	-.003	-.010	-.049	-.203**	.096*	.015	.050	.019	.091*	-.096*	.039	.027	.035	.030	-.025	-.069	.142**	.218**	.161**	.148**	.174**	.102**	.088*	.223**	1						
PPIQ_6	.084*	.071	.004	.051	.089*	.099**	.051	.194**	.204**	.071	.191**	.223**	.254**	.070	.001	.195**	-.029	-.066	-.050	.172**	.003	.124**	.105**	.110**	.102**	.208**	.081*	.077*	.134**	.185**	.206**	.214**	.192**	.140**	.076*	1					
ORG_REP_3	-.003	-.033	-.001	.051	.054	.116**	-.012	.001	.020	.062	.001	.041	.059	-.136**	.044	-.004	.138**	.151**	.211**	.054	.164**	-.015	.007	-.011	-.069	-.062	.022	.050	-.021	.003	.055	.041	.068	.073	.277**	.090*	1				
REL_BEN1	.186**	.125**	.113**	.264**	.223**	.195**	.274**	.091*	.148**	.123**	.021	.045	.019	-.085*	.145**	.116**	-.109**	-.146**	-.110**	-.171**	-.105**	.051	.074	.201**	.119**	.111**	.210**	.280**	.309**	.259**	.199**	.235**	.175**	.210**	.121**	.007	.059	1			
REL_BEN2	.156**	.130**	.084*	.216**	.173**	.165**	.196**	.164**	.167**	.093*	.070	.030	.030	-.029	.059	.068	-.094*	-.124**	-.147**	-.106**	-.047	.040	.040	.172**	.109**	.098**	.185**	.233**	.252**	.195**	.170**	.245**	.170**	.109**	.050	.076*	.006	.503**	1		
REL_BEN3	.145**	.107**	-.034	.089*	.138**	.068	.138**	.071	.097*	.073	.064	.090*	.028	-.041	.047	.096*	-.021	.035	.066	-.164**	.038	.066	.093*	.085*	.067	.064	.092*	.199**	.140**	.137**	.112**	.133**	.113**	.100**	.074*	.052	.076*	.110**	.166**	1	
REL_BEN4	.180**	.164**	.070	.204**	.198**	.155**	.181**	.106**	.128**	.080*	.101**	.125**	.014	-.006	.054	.070	-.047	-.040	.061	-.109**	.042	.094*	.137**	.132**	.042	.056	.160**	.210**	.187**	.172**	.174**	.151**	.139**	.139**	.157**	.091*	.041	.122**	.165**	.479**	1
ORG_REP1	.094*	.067	.002	.182**	.133**	.246**	.175**	.078*	.117**	.121**	.124**	.058	.026	-.101**	.067	.009	.096*	.068	.088*	-.056	.094*	.086*	.108**	.110**	.021	.006	.147**	.265**	.253**	.214**	.210**	.223**	.168**	.196**	.186**	.058	.376**	.247**	.223**	.120**	.205**	1
ORG_REP2	.134**	.142**	.090*	.248**	.234**	.236**	.208**	.129**	.189**	.110**	.131**	.095*	.093*	-.068	.084*	.131**	-.014	-.054	-.030	-.033	.017	.098**	.103**	.239**	.162**	.151**	.225**	.197**	.241**	.242*	.230**	.235**	.230**	.227**	.174**	.162**	.214**	.194**	.165**	.103**	.176**	.462**	1
SPIR_1	.052	.074	.014	.063	.038	-.037	.022	.192**	.250**	.099**	.203**	.289**	.311**	.165**	.015	.287**	.034	-.020	-.016	.225**	-.051	.186**	.110**	.078*	.169**	.167**	-.017	.040	.076*	.122**	.116**	.099**	.164**	.115**	.103**	.337**	.004	-.069	.004	.082*	.034	.000	.080*	1	
SPIR_2	.003	.020	-.022	.063	.056	-.015	.013	.169**	.265**	.105**	.189**	.309**	.348**	.169**	.020	.224**	.032	.001	-.018	.231**	-.053	.187**	.106**	.094*	.159**	.159**	-.023	.014	.068	.122**	.069	.090*	.166**	.103**	-.065	.311**	.021	-.059	-.029	.026	.001	-.028	.091*	.792**	1	.810**
SPIR_3	.002	.021	-.024	.059	.055	-.018	.012	.164**	.264**	.098**	.185**	.310**	.349**	.168**	.020	.224**	.035	-.002	-.023	.234**	-.055	.182**	.108**	.091*	.158**	.153**	-.028	.009	.064	.120**	.071	.088*	.163**	.098**	-.067	.313**	.016	-.059	-.025	.036	.008	-.026	.096*	.788**	.804**	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

APPENDIX H: TESTS OF RELIABILITY

TRUST

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.786	.794	9

Inter-Item Correlation Matrix

	TRUST_1	TRUST_2	TRUST_3	TRUST_4	TRUST_5	TRUST_6	TRUST_7	TRUST_8	TRUST_9
TRUST_1	1.000	.656	.339	.310	.420	.361	.454	.226	.206
TRUST_2	.656	1.000	.333	.250	.351	.260	.309	.281	.252
TRUST_3	.339	.333	1.000	.228	.310	.197	.267	.232	.214
TRUST_4	.310	.250	.228	1.000	.409	.286	.290	.106	.221
TRUST_5	.420	.351	.310	.409	1.000	.416	.462	.229	.253
TRUST_6	.361	.260	.197	.286	.416	1.000	.364	.128	.129
TRUST_7	.454	.309	.267	.290	.462	.364	1.000	.230	.212
TRUST_8	.226	.281	.232	.106	.229	.128	.230	1.000	.589
TRUST_9	.206	.252	.214	.221	.253	.129	.212	.589	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
TRUST_1	30.6060	14.533	.604	.527	.751
TRUST_2	30.7198	14.404	.538	.463	.756
TRUST_3	31.3400	14.111	.419	.187	.776
TRUST_4	31.0882	14.670	.413	.224	.774
TRUST_5	30.6458	14.166	.580	.382	.751
TRUST_6	30.6700	14.928	.417	.241	.772
TRUST_7	30.6714	14.606	.517	.326	.759
TRUST_8	31.3997	14.730	.405	.381	.775
TRUST_9	31.5505	14.701	.420	.380	.772

MARKET ORIENTATION

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.694	.688	7

Inter-Item Correlation Matrix

	MKT_OR_1	MKT_OR_2	MKT_OR_3	MKT_OR_4	Trans_MKT_OR_5	MKT_OR_6	MKT_OR_7
MKT_OR_1	1.000	.242	.175	.125	-.017	.183	.194
MKT_OR_2	.242	1.000	.558	.352	.143	.146	.220
MKT_OR_3	.175	.558	1.000	.509	.220	.243	.336
MKT_OR_4	.125	.352	.509	1.000	.350	.181	.318
Trans_MKT_OR_5	-.017	.143	.220	.350	1.000	.008	.198
MKT_OR_6	.183	.146	.243	.181	.008	1.000	.340
MKT_OR_7	.194	.220	.336	.318	.198	.340	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
MKT_OR_1	18.4651	10.873	.240	.097	.696
MKT_OR_2	19.1878	8.734	.466	.339	.643
MKT_OR_3	19.5107	8.632	.607	.449	.603
MKT_OR_4	19.7027	8.847	.532	.341	.624
Trans_MKT_OR_5	19.9388	10.254	.251	.145	.701
MKT_OR_6	18.4395	10.366	.290	.152	.688
MKT_OR_7	19.0683	9.326	.441	.228	.650

RECTIFIED SCORES FOR MARKET ORIENTATION

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.701	.694	6

Inter-Item Correlation Matrix

	MKT_OR_1	MKT_OR_2	MKT_OR_3	MKT_OR_4	MKT_OR_6	MKT_OR_7
MKT_OR_1	1.000	.242	.175	.125	.183	.194
MKT_OR_2	.242	1.000	.558	.352	.146	.220
MKT_OR_3	.175	.558	1.000	.509	.243	.336
MKT_OR_4	.125	.352	.509	1.000	.181	.318
MKT_OR_6	.183	.146	.243	.181	1.000	.340
MKT_OR_7	.194	.220	.336	.318	.340	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
MKT_OR_1	16.0185	8.705	.273	.091	.703
MKT_OR_2	16.7411	6.830	.479	.339	.646
MKT_OR_3	17.0640	6.809	.610	.448	.601
MKT_OR_4	17.2560	7.233	.476	.290	.646
MKT_OR_6	15.9929	8.229	.323	.145	.692
MKT_OR_7	16.6216	7.475	.430	.216	.662

RISK

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.783	.780	5

Inter-Item Correlation Matrix

	RISK_1	RISK_2	RISK_3	RISK_4	RISK_5
RISK_1	1.000	.634	.490	.316	.327
RISK_2	.634	1.000	.614	.317	.447
RISK_3	.490	.614	1.000	.284	.485
RISK_4	.316	.317	.284	1.000	.230
RISK_5	.327	.447	.485	.230	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
RISK_1	11.2560	8.769	.599	.429	.728
RISK_2	11.1437	8.437	.706	.542	.691
RISK_3	10.8734	8.763	.644	.448	.713
RISK_4	12.4893	10.649	.364	.135	.799
RISK_5	10.9772	9.538	.489	.275	.765

PERCEIVED SECURITY AND TECHNOLOGICAL TRUSTWORTHINESS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.723	.725	6

Inter-Item Correlation Matrix

	SEC_TRST1	SEC_TRST2	SEC_TRST3	SEC_TRST4	SEC_TRST5	SEC_TRST6
SEC_TRST1	1.000	.473	.354	.286	.293	.103
SEC_TRST2	.473	1.000	.336	.224	.207	.143
SEC_TRST3	.354	.336	1.000	.486	.429	.309
SEC_TRST4	.286	.224	.486	1.000	.460	.250
SEC_TRST5	.293	.207	.429	.460	1.000	.234
SEC_TRST6	.103	.143	.309	.250	.234	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SEC_TRST1	16.5576	7.897	.459	.289	.685
SEC_TRST2	16.3627	8.269	.413	.258	.698
SEC_TRST3	16.0014	8.127	.594	.366	.651
SEC_TRST4	16.2873	7.895	.519	.325	.666
SEC_TRST5	16.7582	7.517	.487	.285	.677
SEC_TRST6	15.7070	9.350	.294	.118	.726

USER INTERFACE QUALITY

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.781	.781	3

Inter-Item Correlation Matrix

	UIQ_1	UIQ_2	UIQ_3
UIQ_1	1.000	.530	.442
UIQ_2	.530	1.000	.655
UIQ_3	.442	.655	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
UIQ_1	7.9559	1.612	.534	.297	.791
UIQ_2	7.9730	1.271	.702	.501	.609
UIQ_3	8.1053	1.288	.633	.441	.691

PERCEIVED PRODUCT INFORMATION QUALITY

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.709	.721	6

Inter-Item Correlation Matrix

	PPIQ_1	PPIQ_2	PPIQ_3	PPIQ_4	PPIQ_5	PPIQ_6
PPIQ_1	1.000	.605	.467	.416	.174	.206
PPIQ_2	.605	1.000	.589	.473	.102	.214
PPIQ_3	.467	.589	1.000	.548	.088	.192
PPIQ_4	.416	.473	.548	1.000	.223	.140
PPIQ_5	.174	.102	.088	.223	1.000	.076
PPIQ_6	.206	.214	.192	.140	.076	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PPIQ_1	18.0427	6.351	.577	.407	.626
PPIQ_2	18.1508	6.248	.614	.500	.614
PPIQ_3	18.3058	6.426	.575	.451	.628
PPIQ_4	18.1337	6.697	.553	.369	.638
PPIQ_5	17.7767	7.593	.184	.066	.754
PPIQ_6	18.9716	7.526	.235	.061	.733

RELATIONAL BENEFIT

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.580	.581	4

Inter-Item Correlation Matrix

	REL_BEN1	REL_BEN2	REL_BEN3	REL_BEN4
REL_BEN1	1.000	.503	.110	.122
REL_BEN2	.503	1.000	.166	.165
REL_BEN3	.110	.166	1.000	.479
REL_BEN4	.122	.165	.479	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
REL_BEN1	10.9844	5.027	.340	.255	.527
REL_BEN2	11.2091	4.408	.372	.269	.500
REL_BEN3	11.5704	4.308	.364	.238	.508
REL_BEN4	11.4751	4.438	.376	.238	.497

SOCIAL PRESENCE

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.947	.948	3

Inter-Item Correlation Matrix

	SPIR_1	SPIR_2	SPIR_3
SPIR_1	1.000	.792	.788
SPIR_2	.792	1.000	.994
SPIR_3	.788	.994	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SPIR_1	4.8563	3.539	.792	.628	.997
SPIR_2	4.8962	3.253	.943	.987	.881
SPIR_3	4.8990	3.276	.940	.987	.884

IMPORTANCE OF WEBSITES' REPUTATION

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.602	.618	3

Inter-Item Correlation Matrix

	ORG_REP1	ORG_REP2	ORG_REP3
ORG_REP1	1.000	.462	.376
ORG_REP2	.462	1.000	.214
ORG_REP3	.376	.214	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ORG_REP1	7.3855	2.289	.535	.293	.353
ORG_REP2	7.8108	2.231	.389	.215	.535
ORG_REP3	7.8848	2.190	.337	.143	.626